

ALMANAC

XVII

PLANETARY  
PHENOMENA OF  
PLUTO IN BCE



**The almanac XVII contains a list of planetary phenomena of Pluto from the 6th millennium BCE to the 1st millennium BCE, from the 54th century BCE to the 1st century BCE.**



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 1

Attention, astronomical year style is used: The year -5400 in astronomical counting style is the year 5401 BCE in historical counting style.

retrograde	-5400 Jan 04 j 13:24	22°06'54		minimum elong	-5393 Oct 11 j 11:31	8°05'23	9°26'18
opposition	-5400 Mar 23 j 02:11	20°04'48	14°10'25	max. Earth dist.	-5393 Oct 12 j 19:55	8°05'54	31.64410 AU
min. Earth dist.	-5400 Mar 22 j 17:26	20°04'24	28.85136 AU	retrograde	-5392 Jan 23 j 17:41	11°02'34	
direct	-5400 Jun 10 j 19:08	19°01'23		min. Earth dist.	-5392 Apr 10 j 22:26	10°04'43	29.74457 AU
				opposition	-5392 Apr 12 j 08:50	10°02'26	9°46'03
conjunction	-5400 Sep 24 j 06:02	21°05'51	13°02'11	direct	-5392 Jul 01 j 03:40	8°04'05	
minimum elong	-5400 Sep 24 j 06:27	21°05'54	13°02'25				
max. Earth dist.	-5400 Sep 24 j 16:51	21°05'56	30.83414 AU	conjunction	-5392 Oct 12 j 22:56	11°01'20	8°52'16
retrograde	-5399 Jan 06 j 08:52	24°03'53		minimum elong	-5392 Oct 12 j 23:18	11°01'22	8°52'24
opposition	-5399 Mar 25 j 23:02	23°01'35	13°41'12	max. Earth dist.	-5392 Oct 14 j 11:20	11°01'34	31.79375 AU
min. Earth dist.	-5399 Mar 25 j 10:03	23°01'45	28.92938 AU	retrograde	-5391 Jan 25 j 03:56	13°04'01	
direct	-5399 Jun 13 j 15:55	21°04'54		min. Earth dist.	-5391 Apr 13 j 11:03	12°01'43	29.89500 AU
				opposition	-5391 Apr 15 j 00:13	12°01'16	9°09'26
conjunction	-5399 Sep 26 j 22:21	24°02'18	12°34'20	direct	-5391 Jul 03 j 20:37	10°05'08	
minimum elong	-5399 Sep 26 j 22:47	24°02'21	12°34'32				
max. Earth dist.	-5399 Sep 27 j 13:46	24°02'50	30.92149 AU	conjunction	-5391 Oct 15 j 09:47	13°02'07	8°17'52
retrograde	-5398 Jan 09 j 01:33	27°05'31		minimum elong	-5391 Oct 15 j 10:08	13°02'08	8°17'59
opposition	-5398 Mar 28 j 19:33	25°04'29	13°10'39	max. Earth dist.	-5391 Oct 17 j 00:04	13°02'43	31.95173 AU
min. Earth dist.	-5398 Mar 28 j 03:56	25°04'53	29.01813 AU	retrograde	-5390 Jan 27 j 15:39	15°05'42	
direct	-5398 Jun 16 j 12:54	24°01'06		min. Earth dist.	-5390 Apr 15 j 22:20	14°03'48	30.05423 AU
				opposition	-5390 Apr 17 j 14:56	14°03'08	8°32'21
conjunction	-5398 Sep 29 j 13:55	26°05'22	12°05'17	direct	-5390 Jul 06 j 10:02	13°01'23	
minimum elong	-5398 Sep 29 j 14:21	26°05'25	12°05'30				
max. Earth dist.	-5398 Sep 30 j 07:51	26°05'09	31.01937 AU	conjunction	-5390 Oct 17 j 19:57	15°03'57	7°43'05
retrograde	-5397 Jan 11 j 19:13	29°03'22		minimum elong	-5390 Oct 17 j 20:16	15°03'59	7°43'11
opposition	-5397 Mar 31 j 15:23	28°01'04	12°38'53	max. Earth dist.	-5390 Oct 19 j 14:17	15°04'55	32.11836 AU
min. Earth dist.	-5397 Mar 30 j 19:23	28°01'36	29.11708 AU	retrograde	-5389 Jan 30 j 00:55	18°07'32	
direct	-5397 Jun 19 j 08:32	26°04'53		min. Earth dist.	-5389 Apr 18 j 10:05	16°09'53	30.22224 AU
				opposition	-5389 Apr 20 j 04:56	16°04'05	7°54'54
conjunction	-5397 Oct 02 j 05:07	29°02'58	11°35'11	direct	-5389 Jul 08 j 23:57	15°02'45	
minimum elong	-5397 Oct 02 j 05:32	29°02'30	11°35'21				
max. Earth dist.	-5397 Oct 03 j 02:56	29°02'57	31.12699 AU	conjunction	-5389 Oct 20 j 05:21	17°05'55	7°07'58
	-5397 Oct 18 j 01:22	0°00'		minimum elong	-5389 Oct 20 j 05:39	17°05'57	7°08'03
retrograde	-5396 Jan 14 j 10:52	1°05'58		max. Earth dist.	-5389 Oct 22 j 01:33	17°05'01	32.29373 AU
opposition	-5396 Apr 02 j 10:48	0°03'08	12°06'02	retrograde	-5388 Feb 01 j 12:10	20°01'82	
min. Earth dist.	-5396 Apr 01 j 12:38	0°03'38	29.22555 AU	min. Earth dist.	-5388 Apr 19 j 19:11	19°01'15	30.39916 AU
	-5396 Apr 25 j 11:26	30°00'00		opposition	-5388 Apr 21 j 18:00	18°05'12	7°17'10
direct	-5396 Jun 21 j 04:27	29°01'31		direct	-5388 Jul 10 j 12:14	17°03'18	
	-5396 Aug 13 j 18:10	0°00'					
conjunction	-5396 Oct 03 j 19:35	1°04'48	11°04'07	conjunction	-5388 Oct 21 j 14:06	20°02'06	6°32'38
minimum elong	-5396 Oct 03 j 20:00	1°04'48	11°04'17	minimum elong	-5388 Oct 21 j 14:23	20°02'07	6°32'43
max. Earth dist.	-5396 Oct 04 j 19:59	1°05'02	31.24385 AU	max. Earth dist.	-5388 Oct 23 j 13:56	20°06'30	32.47746 AU
retrograde	-5395 Jan 16 j 03:24	4°02'23		retrograde	-5387 Feb 02 j 21:34	22°02'21	
min. Earth dist.	-5395 Apr 04 j 03:11	3°02'10	29.34288 AU	min. Earth dist.	-5387 Apr 22 j 05:54	21°01'41	30.58435 AU
opposition	-5395 Apr 05 j 05:20	3°00'24	11°32'13	opposition	-5387 Apr 24 j 06:24	21°07'33	6°39'16
direct	-5395 Jun 24 j 00:32	1°03'48		direct	-5387 Jul 13 j 01:35	19°04'06	
conjunction	-5395 Oct 06 j 09:31	4°01'11	10°32'12	conjunction	-5387 Oct 23 j 22:08	22°01'32	5°57'09
minimum elong	-5395 Oct 06 j 09:56	4°01'13	10°32'20	minimum elong	-5387 Oct 23 j 22:23	22°01'34	5°57'12
max. Earth dist.	-5395 Oct 07 j 12:55	4°01'40	31.36912 AU	max. Earth dist.	-5387 Oct 25 j 23:49	22°01'50	32.66902 AU
retrograde	-5394 Jan 18 j 16:27	6°04'41		retrograde	-5386 Feb 05 j 07:45	24°03'47	
opposition	-5394 Apr 07 j 23:12	5°02'57	10°57'33	min. Earth dist.	-5386 Apr 24 j 13:45	23°01'83	30.77713 AU
min. Earth dist.	-5394 Apr 06 j 19:01	5°02'45	29.46862 AU	opposition	-5386 Apr 26 j 17:46	23°01'51	6°01'17
direct	-5394 Jun 26 j 17:49	4°00'43		direct	-5386 Jul 15 j 13:50	21°05'12	
conjunction	-5394 Oct 08 j 22:49	6°03'25	9°59'31	conjunction	-5386 Oct 26 j 05:30	24°01'17	5°21'36
minimum elong	-5394 Oct 08 j 23:12	6°03'27	9°59'40	minimum elong	-5386 Oct 26 j 05:43	24°01'18	5°21'40
max. Earth dist.	-5394 Oct 10 j 05:15	6°03'50	31.50265 AU	max. Earth dist.	-5386 Oct 28 j 09:53	24°02'01	32.86751 AU
retrograde	-5393 Jan 21 j 04:58	9°05'08		retrograde	-5385 Feb 07 j 14:41	26°04'01	
min. Earth dist.	-5393 Apr 09 j 08:38	7°04'54	29.60245 AU	min. Earth dist.	-5385 Apr 26 j 23:13	25°02'43	30.97685 AU
opposition	-5393 Apr 10 j 16:21	7°04'39	10°22'08	opposition	-5385 Apr 29 j 04:43	25°02'09	5°23'17
direct	-5393 Jun 29 j 12:30	6°02'17		direct	-5385 Jul 18 j 00:21	24°02'38	
conjunction	-5393 Oct 11 j 11:08	8°05'23	9°26'10	conjunction	-5385 Oct 28 j 12:14	26°02'22	4°46'04
				minimum elong	-5385 Oct 28 j 12:26	26°02'23	4°46'06



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 2

Attention, astronomical year style is used: The year -5385 in astronomical counting style is the year 5386 BCE in historical counting style.

max. Earth dist.	-5385 Oct 30 j 18:58	26° $\overset{\circ}{\text{N}}$ 27'17	33.07229 AU	behind sun begin	-5377 Nov 12 j 13:24	12° $\overset{\circ}{\text{S}}$ 00'21	
retrograde	-5384 Feb 09 j 20:49	28° $\overset{\circ}{\text{N}}$ 44'08		behind sun end	-5377 Nov 13 j 00:13	12° $\overset{\circ}{\text{S}}$ 01'12	
min. Earth dist.	-5384 Apr 28 j 06:38	27° $\overset{\circ}{\text{N}}$ 29'00	31.18244 AU	max. Earth dist.	-5377 Nov 15 j 14:33	12° $\overset{\circ}{\text{S}}$ 06'27	34.85946 AU
opposition	-5384 Apr 30 j 14:45	27° $\overset{\circ}{\text{N}}$ 25'26	4°45'22	desc. node	-5376 Feb 23 j 12:41	14° $\overset{\circ}{\text{S}}$ 13'17	
direct	-5384 Jul 19 j 12:26	26° $\overset{\circ}{\text{N}}$ 07'23		retrograde	-5376 Feb 25 j 03:35	14° $\overset{\circ}{\text{S}}$ 13'19	
				min. Earth dist.	-5376 May 13 j 23:04	13° $\overset{\circ}{\text{S}}$ 01'21	32.97893 AU
conjunction	-5384 Oct 29 j 18:20	28° $\overset{\circ}{\text{N}}$ 25'47	4°10'36	opposition	-5376 May 16 j 20:17	12° $\overset{\circ}{\text{S}}$ 57'09	0°-7'-57
minimum elong	-5384 Oct 29 j 18:31	28° $\overset{\circ}{\text{N}}$ 25'48	4°10'39	direct	-5376 Aug 04 j 18:55	11° $\overset{\circ}{\text{S}}$ 42'14	
max. Earth dist.	-5384 Nov 01 j 02:31	28° $\overset{\circ}{\text{N}}$ 30'47	33.28222 AU				
	-5384 Dec 17 j 04:29	0° $\overset{\circ}{\text{S}}$		conjunction	-5376 Nov 13 j 19:53	13° $\overset{\circ}{\text{S}}$ 50'17	0°-23'-43
retrograde	-5383 Feb 11 j 03:25	0° $\overset{\circ}{\text{S}}$ 46'23		minimum elong	-5376 Nov 13 j 19:52	13° $\overset{\circ}{\text{S}}$ 50'17	0°23'46
	-5383 Apr 11 j 06:23	30° $\overset{\circ}{\text{N}}$		max. Earth dist.	-5376 Nov 16 j 17:49	13° $\overset{\circ}{\text{S}}$ 56'07	35.10031 AU
min. Earth dist.	-5383 Apr 30 j 14:06	29° $\overset{\circ}{\text{N}}$ 31'42	31.39324 AU	retrograde	-5375 Feb 26 j 02:09	16° $\overset{\circ}{\text{S}}$ 01'45	
opposition	-5383 May 02 j 23:58	29° $\overset{\circ}{\text{N}}$ 28'03	4°07'35	min. Earth dist.	-5375 May 16 j 00:49	14° $\overset{\circ}{\text{S}}$ 50'11	33.22174 AU
direct	-5383 Jul 21 j 21:01	28° $\overset{\circ}{\text{N}}$ 10'26		opposition	-5375 May 18 j 23:29	14° $\overset{\circ}{\text{S}}$ 45'55	0°-42'-40
	-5383 Oct 18 j 22:17	0° $\overset{\circ}{\text{S}}$		direct	-5375 Aug 07 j 00:32	13° $\overset{\circ}{\text{S}}$ 31'24	
conjunction	-5383 Oct 31 j 23:58	0° $\overset{\circ}{\text{S}}$ 27'30	3°35'18	conjunction	-5375 Nov 15 j 20:11	15° $\overset{\circ}{\text{S}}$ 38'18	0°-56'-12
minimum elong	-5383 Nov 01 j 00:08	0° $\overset{\circ}{\text{S}}$ 27'31	3°35'18	minimum elong	-5375 Nov 15 j 20:09	15° $\overset{\circ}{\text{S}}$ 38'18	0°56'17
max. Earth dist.	-5383 Nov 03 j 10:37	0° $\overset{\circ}{\text{S}}$ 32'41	33.49670 AU	max. Earth dist.	-5375 Nov 18 j 18:38	15° $\overset{\circ}{\text{S}}$ 44'07	35.34481 AU
retrograde	-5382 Feb 13 j 07:08	2° $\overset{\circ}{\text{S}}$ 46'57		retrograde	-5374 Feb 28 j 02:58	17° $\overset{\circ}{\text{S}}$ 48'43	
min. Earth dist.	-5382 May 02 j 21:16	1° $\overset{\circ}{\text{S}}$ 32'41	31.60824 AU	min. Earth dist.	-5374 May 18 j 01:40	16° $\overset{\circ}{\text{S}}$ 37'35	33.46832 AU
opposition	-5382 May 05 j 08:32	1° $\overset{\circ}{\text{S}}$ 28'58	3°30'02	opposition	-5374 May 21 j 02:17	16° $\overset{\circ}{\text{S}}$ 33'13	-1°-16'-50
direct	-5382 Jul 24 j 06:59	0° $\overset{\circ}{\text{S}}$ 11'47		direct	-5374 Aug 09 j 02:25	15° $\overset{\circ}{\text{S}}$ 19'08	
conjunction	-5382 Nov 03 j 04:40	2° $\overset{\circ}{\text{S}}$ 27'30	3°00'11	conjunction	-5374 Nov 17 j 19:57	17° $\overset{\circ}{\text{S}}$ 24'53	-1°-28'-12
minimum elong	-5382 Nov 03 j 04:48	2° $\overset{\circ}{\text{S}}$ 27'31	3°00'12	minimum elong	-5374 Nov 17 j 19:54	17° $\overset{\circ}{\text{S}}$ 24'53	1°28'16
max. Earth dist.	-5382 Nov 05 j 15:55	2° $\overset{\circ}{\text{S}}$ 32'42	33.71491 AU	max. Earth dist.	-5374 Nov 20 j 20:49	17° $\overset{\circ}{\text{S}}$ 30'51	35.59250 AU
retrograde	-5381 Feb 15 j 12:26	4° $\overset{\circ}{\text{S}}$ 45'48		retrograde	-5373 Mar 02 j 01:37	19° $\overset{\circ}{\text{S}}$ 34'18	
min. Earth dist.	-5381 May 05 j 02:51	3° $\overset{\circ}{\text{S}}$ 31'58	31.82714 AU	min. Earth dist.	-5373 May 20 j 03:35	18° $\overset{\circ}{\text{S}}$ 23'31	33.71779 AU
opposition	-5381 May 07 j 16:26	3° $\overset{\circ}{\text{S}}$ 28'08	2°52'45	opposition	-5373 May 23 j 04:31	18° $\overset{\circ}{\text{S}}$ 19'09	-1°-50'-25
direct	-5381 Jul 26 j 13:26	2° $\overset{\circ}{\text{S}}$ 11'21		direct	-5373 Aug 11 j 05:11	17° $\overset{\circ}{\text{S}}$ 05'28	
conjunction	-5381 Nov 05 j 08:58	4° $\overset{\circ}{\text{S}}$ 25'45	2°25'19	conjunction	-5373 Nov 19 j 19:17	19° $\overset{\circ}{\text{S}}$ 10'07	-1°-59'-40
minimum elong	-5381 Nov 05 j 09:04	4° $\overset{\circ}{\text{S}}$ 25'46	2°25'19	minimum elong	-5373 Nov 19 j 19:12	19° $\overset{\circ}{\text{S}}$ 10'07	1°59'45
max. Earth dist.	-5381 Nov 07 j 22:51	4° $\overset{\circ}{\text{S}}$ 31'07	33.93659 AU	max. Earth dist.	-5373 Nov 22 j 20:19	19° $\overset{\circ}{\text{S}}$ 16'04	35.84263 AU
retrograde	-5380 Feb 17 j 15:42	6° $\overset{\circ}{\text{S}}$ 42'52		retrograde	-5372 Mar 03 j 02:45	21° $\overset{\circ}{\text{S}}$ 18'33	
min. Earth dist.	-5380 May 06 j 09:21	5° $\overset{\circ}{\text{S}}$ 29'22	32.04958 AU	min. Earth dist.	-5372 May 21 j 03:02	20° $\overset{\circ}{\text{S}}$ 08'13	33.96955 AU
opposition	-5380 May 08 j 23:32	5° $\overset{\circ}{\text{S}}$ 25'30	2°15'47	opposition	-5372 May 24 j 05:57	20° $\overset{\circ}{\text{S}}$ 03'46	-2°-23'-25
direct	-5380 Jul 27 j 20:10	4° $\overset{\circ}{\text{S}}$ 09'07		direct	-5372 Aug 12 j 05:12	18° $\overset{\circ}{\text{S}}$ 50'29	
conjunction	-5380 Nov 06 j 12:26	6° $\overset{\circ}{\text{S}}$ 22'11	1°50'46	conjunction	-5372 Nov 20 j 18:09	20° $\overset{\circ}{\text{S}}$ 54'04	-2°-30'-35
minimum elong	-5380 Nov 06 j 12:31	6° $\overset{\circ}{\text{S}}$ 22'11	1°50'46	minimum elong	-5372 Nov 20 j 18:04	20° $\overset{\circ}{\text{S}}$ 54'04	2°30'41
max. Earth dist.	-5380 Nov 09 j 02:58	6° $\overset{\circ}{\text{S}}$ 27'34	34.16167 AU	max. Earth dist.	-5372 Nov 23 j 20:53	21° $\overset{\circ}{\text{S}}$ 00'06	36.09432 AU
retrograde	-5379 Feb 18 j 20:25	8° $\overset{\circ}{\text{S}}$ 38'08		retrograde	-5371 Mar 05 j 03:04	23° $\overset{\circ}{\text{S}}$ 01'32	
min. Earth dist.	-5379 May 08 j 12:54	7° $\overset{\circ}{\text{S}}$ 25'04	32.27569 AU	min. Earth dist.	-5371 May 23 j 04:16	21° $\overset{\circ}{\text{S}}$ 51'30	34.22266 AU
opposition	-5379 May 11 j 05:45	7° $\overset{\circ}{\text{S}}$ 21'04	1°39'11	opposition	-5371 May 26 j 06:58	21° $\overset{\circ}{\text{S}}$ 47'05	-2°-55'-48
direct	-5379 Jul 30 j 02:11	6° $\overset{\circ}{\text{S}}$ 05'02		direct	-5371 Aug 14 j 05:05	20° $\overset{\circ}{\text{S}}$ 34'12	
conjunction	-5379 Nov 08 j 15:12	8° $\overset{\circ}{\text{S}}$ 16'48	1°16'33	conjunction	-5371 Nov 22 j 16:33	22° $\overset{\circ}{\text{S}}$ 36'45	-3°00'-57
minimum elong	-5379 Nov 08 j 15:15	8° $\overset{\circ}{\text{S}}$ 16'48	1°16'30	minimum elong	-5371 Nov 22 j 16:26	22° $\overset{\circ}{\text{S}}$ 36'44	3°01'05
max. Earth dist.	-5379 Nov 11 j 08:00	8° $\overset{\circ}{\text{S}}$ 22'20	34.39019 AU	max. Earth dist.	-5371 Nov 25 j 19:38	22° $\overset{\circ}{\text{S}}$ 42'45	36.34688 AU
retrograde	-5378 Feb 20 j 23:34	10° $\overset{\circ}{\text{S}}$ 31'35		retrograde	-5370 Mar 07 j 01:50	24° $\overset{\circ}{\text{S}}$ 43'14	
min. Earth dist.	-5378 May 10 j 17:49	9° $\overset{\circ}{\text{S}}$ 18'50	32.50576 AU	min. Earth dist.	-5370 May 25 j 03:06	23° $\overset{\circ}{\text{S}}$ 33'37	34.47629 AU
opposition	-5378 May 13 j 11:18	9° $\overset{\circ}{\text{S}}$ 14'49	1°03'00	opposition	-5370 May 28 j 07:15	23° $\overset{\circ}{\text{S}}$ 29'09	-3°-27'-34
direct	-5378 Aug 01 j 08:40	7° $\overset{\circ}{\text{S}}$ 59'09		direct	-5370 Aug 16 j 05:51	22° $\overset{\circ}{\text{S}}$ 16'38	
conjunction	-5378 Nov 10 j 17:23	10° $\overset{\circ}{\text{S}}$ 09'39	0°42'42	conjunction	-5370 Nov 24 j 14:27	24° $\overset{\circ}{\text{S}}$ 18'09	-3°-30'-46
minimum elong	-5378 Nov 10 j 17:25	10° $\overset{\circ}{\text{S}}$ 09'39	0°42'41	minimum elong	-5370 Nov 24 j 14:20	24° $\overset{\circ}{\text{S}}$ 18'09	3°30'53
max. Earth dist.	-5378 Nov 13 j 11:35	10° $\overset{\circ}{\text{S}}$ 15'14	34.62279 AU	max. Earth dist.	-5370 Nov 27 j 17:55	24° $\overset{\circ}{\text{S}}$ 24'09	36.59950 AU
retrograde	-5377 Feb 23 j 02:37	12° $\overset{\circ}{\text{S}}$ 23'17		retrograde	-5369 Mar 08 j 23:34	26° $\overset{\circ}{\text{S}}$ 23'42	
min. Earth dist.	-5377 May 12 j 20:08	11° $\overset{\circ}{\text{S}}$ 10'57	32.74012 AU	min. Earth dist.	-5369 May 27 j 02:56	25° $\overset{\circ}{\text{S}}$ 14'23	34.73009 AU
opposition	-5377 May 15 j 16:04	11° $\overset{\circ}{\text{S}}$ 06'48	0°27'17	opposition	-5369 May 30 j 07:10	25° $\overset{\circ}{\text{S}}$ 09'55	-3°-58'-42
direct	-5377 Aug 03 j 14:49	9° $\overset{\circ}{\text{S}}$ 51'31		direct	-5369 Aug 18 j 06:31	23° $\overset{\circ}{\text{S}}$ 57'46	
conjunction	-5377 Nov 12 j 18:48	12° $\overset{\circ}{\text{S}}$ 00'46	0°09'19	conjunction	-5369 Nov 26 j 11:57	25° $\overset{\circ}{\text{S}}$ 58'16	-3°-59'-59
minimum elong	-5377 Nov 12 j 18:48	12° $\overset{\circ}{\text{S}}$ 00'46	0°09'16	minimum elong	-5369 Nov 26 j 11:49	25° $\overset{\circ}{\text{S}}$ 58'15	4°00'07



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 3

Attention, astronomical year style is used: The year -5369 in astronomical counting style is the year 5370 BCE in historical counting style.

max. Earth dist.	-5369 Nov 29 j 16:34	26° <del>2</del> 04'19	36.85197 AU	max. Earth dist.	-5361 Dec 12 j 06:38	8° <del>8</del> 39'32	38.88242 AU
retrograde	-5368 Mar 09 j 18:31	28° <del>2</del> 02'52		retrograde	-5360 Mar 22 j 03:01	10° <del>8</del> 31'14	
min. Earth dist.	-5368 May 28 j 01:48	26° <del>2</del> 53'51	34.98349 AU	min. Earth dist.	-5360 Jun 09 j 18:41	9° <del>8</del> 24'35	37.02937 AU
opposition	-5368 May 31 j 06:21	26° <del>2</del> 49'23	-4°-29'-11	opposition	-5360 Jun 13 j 04:07	9° <del>8</del> 20'00	-8°-8'-59
direct	-5368 Aug 19 j 08:38	25° <del>2</del> 37'33		direct	-5360 Sep 01 j 07:54	8° <del>8</del> 10'40	
conjunction	-5368 Nov 27 j 08:53	27° <del>2</del> 37'03	-4°-28'-37	conjunction	-5360 Dec 09 j 15:26	10° <del>8</del> 03'01	-7°-55'-31
minimum elong	-5368 Nov 27 j 08:44	27° <del>2</del> 37'03	4°28'45	minimum elong	-5360 Dec 09 j 15:13	10° <del>8</del> 03'00	7°55'43
max. Earth dist.	-5368 Nov 30 j 13:03	27° <del>2</del> 43'01	37.10395 AU	max. Earth dist.	-5360 Dec 13 j 01:26	10° <del>8</del> 09'05	39.13779 AU
retrograde	-5367 Mar 11 j 15:39	29° <del>2</del> 40'43		retrograde	-5359 Mar 23 j 19:26	11° <del>8</del> 59'59	
min. Earth dist.	-5367 May 29 j 23:15	28° <del>2</del> 32'01	35.23682 AU	min. Earth dist.	-5359 Jun 11 j 14:12	10° <del>8</del> 53'33	37.28621 AU
opposition	-5367 Jun 02 j 04:50	28° <del>2</del> 27'31	-4°-59'-1	opposition	-5359 Jun 14 j 22:38	10° <del>8</del> 49'03	-8°-33'-26
direct	-5367 Aug 21 j 06:59	27° <del>2</del> 16'00		direct	-5359 Sep 03 j 03:01	9° <del>8</del> 40'02	
conjunction	-5367 Nov 29 j 05:20	29° <del>2</del> 14'30	-4°-56'-40	conjunction	-5359 Dec 11 j 08:36	11° <del>8</del> 31'35	-8°-18'-35
minimum elong	-5367 Nov 29 j 05:10	29° <del>2</del> 14'29	4°56'49	minimum elong	-5359 Dec 11 j 08:23	11° <del>8</del> 31'34	8°18'47
max. Earth dist.	-5367 Dec 02 j 11:08	29° <del>2</del> 20'33	37.35586 AU	max. Earth dist.	-5359 Dec 14 j 17:52	11° <del>8</del> 37'34	39.39198 AU
	-5367 Dec 24 j 05:29	0° <del>8</del>		retrograde	-5358 Mar 25 j 14:18	13° <del>8</del> 27'49	
retrograde	-5366 Mar 13 j 09:54	1° <del>8</del> 17'15		min. Earth dist.	-5358 Jun 13 j 07:27	12° <del>8</del> 21'41	37.54152 AU
min. Earth dist.	-5366 May 31 j 21:40	0° <del>8</del> 08'46	35.49033 AU	opposition	-5358 Jun 16 j 16:47	12° <del>8</del> 17'10	-8°-57'-13
opposition	-5366 Jun 04 j 02:54	0° <del>8</del> 04'18	-5°-28'-12	direct	-5358 Sep 04 j 19:34	11° <del>8</del> 08'26	
	-5366 Jun 07 j 05:28	30° <del>8</del> <del>1</del>					
direct	-5366 Aug 23 j 06:12	28° <del>2</del> 53'06		conjunction	-5358 Dec 13 j 01:19	12° <del>8</del> 59'14	-8°-41'-3
	-5366 Nov 02 j 18:53	0° <del>8</del>		minimum elong	-5358 Dec 13 j 01:06	12° <del>8</del> 59'13	8°41'16
conjunction	-5366 Dec 01 j 01:04	0° <del>8</del> 50'37	-5°-24'-5	max. Earth dist.	-5358 Dec 16 j 10:48	13° <del>8</del> 05'11	39.64415 AU
minimum elong	-5366 Dec 01 j 00:54	0° <del>8</del> 50'36	5°24'14	retrograde	-5357 Mar 27 j 08:00	14° <del>8</del> 54'44	
max. Earth dist.	-5366 Dec 04 j 06:41	0° <del>8</del> 56'37	37.60820 AU	min. Earth dist.	-5357 Jun 15 j 02:26	13° <del>8</del> 48'47	37.79472 AU
retrograde	-5365 Mar 15 j 07:16	2° <del>8</del> 52'28		opposition	-5357 Jun 18 j 10:45	13° <del>8</del> 44'20	-9°-20'-22
min. Earth dist.	-5365 Jun 02 j 17:27	1° <del>8</del> 44'19	35.74463 AU	direct	-5357 Sep 06 j 12:27	12° <del>8</del> 35'54	
opposition	-5365 Jun 06 j 00:22	1° <del>8</del> 39'48	-5°-56'-42	conjunction	-5357 Dec 14 j 17:59	14° <del>8</del> 25'56	-9°-2'-56
direct	-5365 Aug 25 j 02:09	0° <del>8</del> 28'53		minimum elong	-5357 Dec 14 j 17:45	14° <del>8</del> 25'55	9°03'08
conjunction	-5365 Dec 02 j 20:31	2° <del>8</del> 25'28	-5°-50'-54	max. Earth dist.	-5357 Dec 18 j 03:34	14° <del>8</del> 31'52	39.89403 AU
minimum elong	-5365 Dec 02 j 20:20	2° <del>8</del> 25'27	5°51'03		-5356 Jan 03 j 14:27	15° <del>8</del>	
max. Earth dist.	-5365 Dec 06 j 03:33	2° <del>8</del> 31'31	37.86129 AU	retrograde	-5356 Mar 27 j 23:30	16° <del>8</del> 20'41	
retrograde	-5364 Mar 16 j 03:53	4° <del>8</del> 26'26		min. Earth dist.	-5356 Jun 15 j 19:37	15° <del>8</del> 14'59	38.04531 AU
min. Earth dist.	-5364 Jun 03 j 14:41	3° <del>8</del> 18'31	36.00002 AU	opposition	-5356 Jun 19 j 03:58	15° <del>8</del> 10'33	-9°-42'-53
opposition	-5364 Jun 06 j 21:17	3° <del>8</del> 14'02	-6°-24'-31		-5356 Jun 27 j 03:44	15° <del>8</del> <del>8</del>	
direct	-5364 Aug 25 j 21:08	2° <del>8</del> 03'25		direct	-5356 Sep 07 j 07:42	14° <del>8</del> 02'22	
conjunction	-5364 Dec 03 j 15:34	3° <del>8</del> 59'07	-6°-17'-4		-5356 Nov 14 j 08:41	15° <del>8</del>	
minimum elong	-5364 Dec 03 j 15:23	3° <del>8</del> 59'06	6°17'14	conjunction	-5356 Dec 15 j 10:05	15° <del>8</del> 51'40	-9°-24'-13
max. Earth dist.	-5364 Dec 06 j 23:11	4° <del>8</del> 05'09	38.11554 AU	minimum elong	-5356 Dec 15 j 09:52	15° <del>8</del> 51'39	9°24'27
retrograde	-5363 Mar 17 j 22:18	5° <del>8</del> 59'13		max. Earth dist.	-5356 Dec 18 j 18:38	15° <del>8</del> 57'28	40.14126 AU
min. Earth dist.	-5363 Jun 05 j 09:39	4° <del>8</del> 51'39	36.25642 AU	retrograde	-5355 Mar 29 j 15:21	17° <del>8</del> 45'41	
opposition	-5363 Jun 08 j 17:36	4° <del>8</del> 47'06	-6°-51'-40	min. Earth dist.	-5355 Jun 17 j 12:41	16° <del>8</del> 40'11	38.29352 AU
direct	-5363 Aug 27 j 19:05	3° <del>8</del> 36'48		opposition	-5355 Jun 20 j 20:59	16° <del>8</del> 35'47	-10°-4'-46
conjunction	-5363 Dec 05 j 09:58	5° <del>8</del> 31'37	-6°-42'-37	direct	-5355 Sep 09 j 01:20	15° <del>8</del> 27'50	
minimum elong	-5363 Dec 05 j 09:45	5° <del>8</del> 31'36	6°42'48	conjunction	-5355 Dec 17 j 01:48	17° <del>8</del> 16'24	-9°-44'-56
max. Earth dist.	-5363 Dec 08 j 17:49	5° <del>8</del> 37'38	38.37061 AU	minimum elong	-5355 Dec 17 j 01:34	17° <del>8</del> 16'23	9°45'09
retrograde	-5362 Mar 19 j 17:09	7° <del>8</del> 30'54		max. Earth dist.	-5355 Dec 20 j 11:16	17° <del>8</del> 22'14	40.38620 AU
min. Earth dist.	-5362 Jun 07 j 05:15	6° <del>8</del> 23'37	36.51380 AU	retrograde	-5354 Mar 31 j 04:28	19° <del>8</del> 09'42	
opposition	-5362 Jun 10 j 13:37	6° <del>8</del> 19'04	-7°-18'-7	min. Earth dist.	-5354 Jun 19 j 06:05	18° <del>8</del> 04'22	38.53956 AU
direct	-5362 Aug 29 j 15:29	5° <del>8</del> 09'06		opposition	-5354 Jun 22 j 13:30	18° <del>8</del> 00'01	-10°-26'-2
conjunction	-5362 Dec 07 j 04:11	7° <del>8</del> 03'04	-7°-7'-32	direct	-5354 Sep 10 j 20:03	16° <del>8</del> 52'19	
minimum elong	-5362 Dec 07 j 04:00	7° <del>8</del> 03'03	7°07'43	conjunction	-5354 Dec 18 j 17:08	18° <del>8</del> 40'09	-10°-5'-3
max. Earth dist.	-5362 Dec 10 j 13:29	7° <del>8</del> 09'10	38.62646 AU	minimum elong	-5354 Dec 18 j 16:55	18° <del>8</del> 40'08	10°05'18
retrograde	-5361 Mar 21 j 09:16	9° <del>8</del> 01'33		max. Earth dist.	-5354 Dec 22 j 01:41	18° <del>8</del> 45'54	40.62936 AU
min. Earth dist.	-5361 Jun 09 j 00:39	7° <del>8</del> 54'34	36.77160 AU	retrograde	-5353 Apr 01 j 19:40	20° <del>8</del> 32'45	
opposition	-5361 Jun 12 j 09:04	7° <del>8</del> 50'01	-7°-43'-53	min. Earth dist.	-5353 Jun 20 j 21:15	19° <del>8</del> 27'41	38.78420 AU
direct	-5361 Aug 31 j 13:15	6° <del>8</del> 40'22		opposition	-5353 Jun 24 j 05:34	19° <del>8</del> 23'18	-10°-46'-40
conjunction	-5361 Dec 08 j 21:53	8° <del>8</del> 33'31	-7°-31'-50	direct	-5353 Sep 12 j 12:05	18° <del>8</del> 15'50	
minimum elong	-5361 Dec 08 j 21:40	8° <del>8</del> 33'30	7°32'01	conjunction	-5353 Dec 20 j 08:11	20° <del>8</del> 02'59	-10°-24'-35
				minimum elong	-5353 Dec 20 j 07:57	20° <del>8</del> 02'58	10°24'49



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 4

Attention, astronomical year style is used: The year -5353 in astronomical counting style is the year 5354 BCE in historical counting style.

max. Earth dist.	-5353 Dec 23 j 17:33	20°M08'44	40.87120 AU	max. Earth dist.	-5344 Jan 03 j 06:12	0°J44'56	42.75419 AU
retrograde	-5352 Apr 02 j 11:37	21°M54'55		retrograde	-5344 Apr 13 j 02:40	2°J26'49	
min. Earth dist.	-5352 Jun 21 j 13:59	20°M50'00	39.02772 AU	min. Earth dist.	-5344 Jul 02 j 10:27	1°J23'38	40.91820 AU
opposition	-5352 Jun 24 j 21:20	20°M45'41	-11°-6'-40	opposition	-5344 Jul 05 j 15:03	1°J19'36	-13°-25'-5
direct	-5352 Sep 13 j 02:52	19°M38'28		direct	-5344 Sep 23 j 20:19	0°J14'20	
conjunction	-5352 Dec 20 j 22:58	21°M24'57	-10°-43'-31	conjunction	-5344 Dec 31 j 11:29	1°J56'14	-12°-54'-56
minimum elong	-5352 Dec 20 j 22:44	21°M24'56	10°43'46	minimum elong	-5344 Dec 31 j 11:16	1°J56'13	12°55'13
max. Earth dist.	-5352 Dec 24 j 08:08	21°M30'39	41.11216 AU	max. Earth dist.	-5343 Jan 03 j 17:11	2°J01'28	42.97622 AU
retrograde	-5351 Apr 04 j 03:11	23°M16'13		retrograde	-5343 Apr 14 j 14:16	3°J42'56	
min. Earth dist.	-5351 Jun 23 j 04:22	22°M11'35	39.27031 AU	min. Earth dist.	-5343 Jul 03 j 23:52	2°J39'53	41.14030 AU
opposition	-5351 Jun 26 j 12:27	22°M07'15	-11°-26'-2	opposition	-5343 Jul 07 j 03:55	2°J35'54	-13°-39'-55
direct	-5351 Sep 14 j 16:51	21°M00'16		direct	-5343 Sep 25 j 10:19	1°J30'49	
conjunction	-5351 Dec 22 j 13:18	22°M46'07	-11°-1'-52	conjunction	-5342 Jan 02 j 00:01	3°J12'10	-13°-9'-3
minimum elong	-5351 Dec 22 j 13:05	22°M46'06	11°02'07	minimum elong	-5342 Jan 01 j 23:50	3°J12'10	13°09'20
max. Earth dist.	-5351 Dec 25 j 22:12	22°M51'47	41.35220 AU	max. Earth dist.	-5342 Jan 05 j 06:13	3°J17'25	43.19447 AU
retrograde	-5350 Apr 05 j 17:55	24°M36'47		retrograde	-5342 Apr 15 j 23:15	4°J58'19	
min. Earth dist.	-5350 Jun 24 j 19:48	23°M32'21	39.51212 AU	min. Earth dist.	-5342 Jul 05 j 13:57	3°J55'22	41.35870 AU
opposition	-5350 Jun 28 j 03:34	23°M28'04	-11°-44'-47	opposition	-5342 Jul 08 j 16:32	3°J51'27	-13°-54'-15
direct	-5350 Sep 16 j 07:47	22°M21'20		direct	-5342 Sep 27 j 02:13	2°J46'33	
conjunction	-5350 Dec 24 j 03:25	24°M06'35	-11°-19'-39	conjunction	-5341 Jan 03 j 12:07	4°J27'21	-13°-22'-40
minimum elong	-5350 Dec 24 j 03:11	24°M06'34	11°19'54	minimum elong	-5341 Jan 03 j 11:55	4°J27'20	13°22'57
max. Earth dist.	-5350 Dec 27 j 13:15	24°M12'17	41.59137 AU	max. Earth dist.	-5341 Jan 06 j 16:53	4°J32'29	43.40944 AU
retrograde	-5349 Apr 07 j 05:24	25°M56'38		retrograde	-5341 Apr 17 j 10:53	6°J12'57	
min. Earth dist.	-5349 Jun 26 j 10:49	24°M52'27	39.75267 AU	min. Earth dist.	-5341 Jul 07 j 01:45	5°J10'11	41.57409 AU
opposition	-5349 Jun 29 j 18:14	24°M48'11	-12°-2'-56	opposition	-5341 Jul 10 j 04:47	5°J06'15	-14°-8'-2
direct	-5349 Sep 18 j 01:03	23°M41'44		direct	-5341 Sep 28 j 15:01	4°J01'31	
conjunction	-5349 Dec 25 j 17:17	25°M26'23	-11°-36'-51	conjunction	-5340 Jan 05 j 00:06	5°J41'48	-13°-35'-48
minimum elong	-5349 Dec 25 j 17:04	25°M26'23	11°37'06	minimum elong	-5340 Jan 04 j 23:55	5°J41'47	13°36'06
max. Earth dist.	-5349 Dec 29 j 01:55	25°M31'59	41.82912 AU	max. Earth dist.	-5340 Jan 08 j 04:51	5°J46'53	43.62156 AU
retrograde	-5348 Apr 07 j 19:19	27°M15'52		retrograde	-5340 Apr 17 j 23:13	7°J26'51	
min. Earth dist.	-5348 Jun 27 j 00:39	26°M11'57	39.99166 AU	min. Earth dist.	-5340 Jul 07 j 15:14	6°J24'10	41.78695 AU
opposition	-5348 Jun 30 j 08:29	26°M07'40	-12°-20'-29	opposition	-5340 Jul 10 j 16:43	6°J20'20	-14°-21'-19
direct	-5348 Sep 18 j 15:33	25°M01'29		direct	-5340 Sep 29 j 02:40	5°J15'45	
conjunction	-5348 Dec 26 j 07:00	26°M45'35	-11°-53'-30	conjunction	-5339 Jan 05 j 11:53	6°J55'32	-13°-48'-26
minimum elong	-5348 Dec 26 j 06:46	26°M45'34	11°53'46	minimum elong	-5339 Jan 05 j 11:43	6°J55'31	13°48'42
max. Earth dist.	-5348 Dec 29 j 16:18	26°M51'11	42.06491 AU	max. Earth dist.	-5339 Jan 08 j 16:25	7°J00'35	43.83148 AU
retrograde	-5347 Apr 09 j 07:42	28°M34'31		retrograde	-5339 Apr 19 j 11:42	8°J40'04	
min. Earth dist.	-5347 Jun 28 j 16:18	27°M30'45	40.22831 AU	min. Earth dist.	-5339 Jul 09 j 02:41	7°J37'33	41.99754 AU
opposition	-5347 Jul 01 j 22:34	27°M26'35	-12°-37'-27	opposition	-5339 Jul 12 j 04:20	7°J33'43	-14°-34'-4
direct	-5347 Sep 20 j 06:43	26°M20'39		direct	-5339 Sep 30 j 13:33	6°J29'19	
conjunction	-5347 Dec 27 j 20:21	28°M04'11	-12°-9'-38	conjunction	-5338 Jan 06 j 23:08	8°J08'37	-14°00'-34
minimum elong	-5347 Dec 27 j 20:09	28°M04'10	12°09'54	minimum elong	-5338 Jan 06 j 22:58	8°J08'36	14°00'52
max. Earth dist.	-5347 Dec 31 j 04:39	28°M09'41	42.29814 AU	max. Earth dist.	-5338 Jan 10 j 02:39	8°J13'35	44.03926 AU
retrograde	-5346 Apr 10 j 22:34	29°M52'34		retrograde	-5338 Apr 21 j 00:25	9°J52'39	
min. Earth dist.	-5346 Jun 30 j 05:39	28°M49'04	40.46199 AU	min. Earth dist.	-5338 Jul 10 j 14:40	8°J50'18	42.20618 AU
opposition	-5346 Jul 03 j 12:18	28°M44'53	-12°-53'-52	opposition	-5338 Jul 13 j 15:54	8°J46'30	-14°-46'-18
direct	-5346 Sep 21 j 19:15	27°M39'12		direct	-5338 Oct 01 j 23:40	7°J42'17	
conjunction	-5346 Dec 29 j 09:35	29°M22'11	-12°-25'-14	conjunction	-5337 Jan 08 j 10:29	9°J21'07	-14°-12'-13
minimum elong	-5346 Dec 29 j 09:22	29°M22'10	12°25'30	minimum elong	-5337 Jan 08 j 10:19	9°J21'07	14°12'29
max. Earth dist.	-5345 Jan 01 j 17:21	29°M27'37	42.52801 AU	max. Earth dist.	-5337 Jan 11 j 14:34	9°J26'06	44.24511 AU
retrograde	-5345 Jan 22 j 00:25	0°J		retrograde	-5337 Apr 22 j 08:47	11°J04'41	
min. Earth dist.	-5345 Apr 12 j 14:57	1°J10'01		min. Earth dist.	-5337 Jul 12 j 02:47	10°J02'28	42.41258 AU
opposition	-5345 Jul 01 j 20:41	0°J06'39	40.69217 AU	opposition	-5337 Jul 15 j 03:01	9°J58'44	-14°-58'-2
direct	-5345 Jul 05 j 01:53	0°J02'34	-13°-9'-44	direct	-5337 Oct 03 j 13:09	8°J54'43	
conjunction	-5345 Jul 07 j 02:21	30°R		conjunction	-5336 Jan 09 j 21:32	10°J33'06	-14°-23'-23
minimum elong	-5345 Sep 23 j 05:50	28°M57'06		minimum elong	-5336 Jan 09 j 21:22	10°J33'06	14°23'41
max. Earth dist.	-5345 Dec 06 j 00:12	0°J		max. Earth dist.	-5336 Jan 13 j 00:06	10°J37'58	44.44872 AU
retrograde	-5345 Dec 30 j 22:45	0°J39'34	-12°-40'-20	retrograde	-5336 Apr 22 j 18:41	12°J16'13	
minimum elong	-5345 Dec 30 j 22:34	0°J39'33	12°40'36	min. Earth dist.	-5336 Jul 12 j 13:33	11°J14'13	42.61653 AU



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 5

Attention, astronomical year style is used: The year -5336 in astronomical counting style is the year 5337 BCE in historical counting style.

opposition	-5336 Jul	15 j 13:58	11° $\mathring{A}$ 10'29	-15°-9'-16	conjunction	-5327 Jan	19 j 17:48	21° $\mathring{A}$ 00'35	-15°-44'-40
direct	-5336 Oct	04 j 01:15	10° $\mathring{A}$ 06'39		minimum elong	-5327 Jan	19 j 17:43	21° $\mathring{A}$ 00'35	15°45'00
					max. Earth dist.	-5327 Jan	22 j 13:28	21° $\mathring{A}$ 04'50	46.11354 AU
conjunction	-5335 Jan	10 j 08:26	11° $\mathring{A}$ 44'38	-14°-34'-5	retrograde	-5327 May	03 j 13:21	22° $\mathring{A}$ 39'57	
minimum elong	-5335 Jan	10 j 08:17	11° $\mathring{A}$ 44'38	14°34'23	min. Earth dist.	-5327 Jul	23 j 15:21	21° $\mathring{A}$ 38'57	44.27712 AU
max. Earth dist.	-5335 Jan	13 j 11:06	11° $\mathring{A}$ 49'29	44.64951 AU	opposition	-5327 Jul	26 j 06:44	21° $\mathring{A}$ 35'45	-16°-30'-35
retrograde	-5335 Apr	24 j 05:44	13° $\mathring{A}$ 27'19		direct	-5327 Oct	14 j 19:17	20° $\mathring{A}$ 33'18	
min. Earth dist.	-5335 Jul	14 j 02:03	12° $\mathring{A}$ 25'26	42.81742 AU					
opposition	-5335 Jul	17 j 00:41	12° $\mathring{A}$ 21'48	-15°-20'-2	conjunction	-5326 Jan	21 j 03:01	22° $\mathring{A}$ 07'50	-15°-51'-39
direct	-5335 Oct	05 j 12:08	11° $\mathring{A}$ 18'10		minimum elong	-5326 Jan	21 j 02:55	22° $\mathring{A}$ 07'50	15°51'58
					max. Earth dist.	-5326 Jan	23 j 20:59	22° $\mathring{A}$ 11'58	46.28097 AU
conjunction	-5334 Jan	11 j 19:14	12° $\mathring{A}$ 55'45	-14°-44'-21	retrograde	-5326 May	04 j 21:19	23° $\mathring{A}$ 46'49	
minimum elong	-5334 Jan	11 j 19:06	12° $\mathring{A}$ 55'44	14°44'40	min. Earth dist.	-5326 Jul	25 j 00:22	22° $\mathring{A}$ 45'57	44.44457 AU
max. Earth dist.	-5334 Jan	14 j 20:59	13° $\mathring{A}$ 00'31	44.84717 AU	opposition	-5326 Jul	27 j 15:34	22° $\mathring{A}$ 42'47	-16°-37'-29
retrograde	-5334 Apr	25 j 17:09	14° $\mathring{A}$ 38'01		direct	-5326 Oct	16 j 04:43	21° $\mathring{A}$ 40'28	
min. Earth dist.	-5334 Jul	15 j 12:36	13° $\mathring{A}$ 36'19	43.01470 AU					
opposition	-5334 Jul	18 j 11:09	13° $\mathring{A}$ 32'42	-15°-30'-20	conjunction	-5325 Jan	22 j 12:08	23° $\mathring{A}$ 14'40	-15°-58'-13
direct	-5334 Oct	06 j 21:41	12° $\mathring{A}$ 29'16		minimum elong	-5325 Jan	22 j 12:04	23° $\mathring{A}$ 14'40	15°58'33
					max. Earth dist.	-5325 Jan	25 j 06:33	23° $\mathring{A}$ 18'49	46.44607 AU
conjunction	-5333 Jan	13 j 05:46	14° $\mathring{A}$ 06'27	-14°-54'-11	retrograde	-5325 May	06 j 03:36	24° $\mathring{A}$ 53'17	
minimum elong	-5333 Jan	13 j 05:38	14° $\mathring{A}$ 06'27	14°54'29	min. Earth dist.	-5325 Jul	26 j 10:39	23° $\mathring{A}$ 52'30	44.60948 AU
max. Earth dist.	-5333 Jan	16 j 06:03	14° $\mathring{A}$ 11'06	45.04084 AU	opposition	-5325 Jul	29 j 00:17	23° $\mathring{A}$ 49'24	-16°-43'-58
retrograde	-5333 Apr	27 j 05:28	15° $\mathring{A}$ 48'18		direct	-5325 Oct	17 j 16:08	22° $\mathring{A}$ 47'14	
min. Earth dist.	-5333 Jul	17 j 00:34	14° $\mathring{A}$ 46'43	43.20781 AU					
opposition	-5333 Jul	19 j 21:36	14° $\mathring{A}$ 43'11	-15°-40'-12	conjunction	-5324 Jan	23 j 21:12	24° $\mathring{A}$ 21'07	-16°-4'-23
direct	-5333 Oct	08 j 06:44	13° $\mathring{A}$ 39'56		minimum elong	-5324 Jan	23 j 21:08	24° $\mathring{A}$ 21'06	16°04'41
					max. Earth dist.	-5324 Jan	26 j 14:17	24° $\mathring{A}$ 25'10	46.60874 AU
conjunction	-5332 Jan	14 j 16:27	15° $\mathring{A}$ 16'44	-15°-3'-37	retrograde	-5324 May	06 j 12:00	25° $\mathring{A}$ 59'23	
minimum elong	-5332 Jan	14 j 16:18	15° $\mathring{A}$ 16'44	15°03'55	min. Earth dist.	-5324 Jul	26 j 18:42	24° $\mathring{A}$ 58'47	44.77171 AU
max. Earth dist.	-5332 Jan	17 j 16:34	15° $\mathring{A}$ 21'21	45.23013 AU	opposition	-5324 Jul	29 j 08:34	24° $\mathring{A}$ 55'41	-16°-50'-2
retrograde	-5332 Apr	27 j 13:53	16° $\mathring{A}$ 58'09		direct	-5324 Oct	18 j 01:13	23° $\mathring{A}$ 53'39	
min. Earth dist.	-5332 Jul	17 j 11:56	15° $\mathring{A}$ 56'40	43.39614 AU					
opposition	-5332 Jul	20 j 07:36	15° $\mathring{A}$ 53'14	-15°-49'-39	conjunction	-5323 Jan	24 j 06:03	25° $\mathring{A}$ 27'14	-16°-10'-10
direct	-5332 Oct	08 j 18:37	14° $\mathring{A}$ 50'07		minimum elong	-5323 Jan	24 j 05:59	25° $\mathring{A}$ 27'13	16°10'30
					max. Earth dist.	-5323 Jan	26 j 22:14	25° $\mathring{A}$ 31'12	46.76846 AU
conjunction	-5331 Jan	15 j 02:44	16° $\mathring{A}$ 26'33	-15°-12'-38	retrograde	-5323 May	07 j 22:34	27° $\mathring{A}$ 05'11	
minimum elong	-5331 Jan	15 j 02:38	16° $\mathring{A}$ 26'32	15°12'56	min. Earth dist.	-5323 Jul	28 j 04:53	26° $\mathring{A}$ 04'38	44.93082 AU
max. Earth dist.	-5331 Jan	18 j 00:40	16° $\mathring{A}$ 31'01	45.41473 AU	opposition	-5323 Jul	30 j 16:58	26° $\mathring{A}$ 01'38	-16°-55'-42
retrograde	-5331 Apr	28 j 23:40	18° $\mathring{A}$ 07'33		direct	-5323 Oct	19 j 08:20	24° $\mathring{A}$ 59'46	
min. Earth dist.	-5331 Jul	18 j 22:13	17° $\mathring{A}$ 06'12	43.57986 AU					
opposition	-5331 Jul	21 j 17:32	17° $\mathring{A}$ 02'47	-15°-58'-41	conjunction	-5322 Jan	25 j 14:46	26° $\mathring{A}$ 33'02	-16°-15'-34
direct	-5331 Oct	10 j 04:56	15° $\mathring{A}$ 59'49		minimum elong	-5322 Jan	25 j 14:43	26° $\mathring{A}$ 33'02	16°15'53
					max. Earth dist.	-5322 Jan	28 j 06:45	26° $\mathring{A}$ 36'59	46.92488 AU
conjunction	-5330 Jan	16 j 12:43	17° $\mathring{A}$ 35'51	-15°-21'-15	retrograde	-5322 May	09 j 08:21	28° $\mathring{A}$ 10'40	
minimum elong	-5330 Jan	16 j 12:35	17° $\mathring{A}$ 35'50	15°21'34	min. Earth dist.	-5322 Jul	29 j 13:45	27° $\mathring{A}$ 10'15	45.08610 AU
max. Earth dist.	-5330 Jan	19 j 10:28	17° $\mathring{A}$ 40'17	45.59478 AU	opposition	-5322 Aug	01 j 01:06	27° $\mathring{A}$ 07'17	-17°-1'00
retrograde	-5330 Apr	30 j 06:58	19° $\mathring{A}$ 16'26		direct	-5322 Oct	20 j 15:20	26° $\mathring{A}$ 05'34	
min. Earth dist.	-5330 Jul	20 j 09:59	18° $\mathring{A}$ 15'08	43.75921 AU					
opposition	-5330 Jul	23 j 03:18	18° $\mathring{A}$ 11'49	-16°-7'-18	conjunction	-5321 Jan	26 j 23:27	27° $\mathring{A}$ 38'33	-16°-20'-37
direct	-5330 Oct	11 j 17:22	17° $\mathring{A}$ 09'00		minimum elong	-5321 Jan	26 j 23:24	27° $\mathring{A}$ 38'33	16°20'57
					max. Earth dist.	-5321 Jan	29 j 13:16	27° $\mathring{A}$ 42'21	47.07721 AU
conjunction	-5329 Jan	17 j 22:38	18° $\mathring{A}$ 44'37	-15°-29'-28	retrograde	-5321 May	10 j 18:23	29° $\mathring{A}$ 15'51	
minimum elong	-5329 Jan	17 j 22:33	18° $\mathring{A}$ 44'37	15°29'47	min. Earth dist.	-5321 Jul	30 j 22:45	28° $\mathring{A}$ 15'32	45.23709 AU
max. Earth dist.	-5329 Jan	20 j 19:13	18° $\mathring{A}$ 48'58	45.77096 AU	opposition	-5321 Aug	02 j 09:05	28° $\mathring{A}$ 12'38	-17°-5'-56
retrograde	-5329 May	01 j 17:18	20° $\mathring{A}$ 24'47		direct	-5321 Oct	21 j 22:07	27° $\mathring{A}$ 11'02	
min. Earth dist.	-5329 Jul	21 j 19:16	19° $\mathring{A}$ 23'37	43.93485 AU					
opposition	-5329 Jul	24 j 12:35	19° $\mathring{A}$ 20'19	-16°-15'-30	conjunction	-5320 Jan	28 j 08:15	28° $\mathring{A}$ 43'45	-16°-25'-19
direct	-5329 Oct	13 j 02:39	18° $\mathring{A}$ 17'36		minimum elong	-5320 Jan	28 j 08:13	28° $\mathring{A}$ 43'44	16°25'38
					max. Earth dist.	-5320 Jan	30 j 21:40	28° $\mathring{A}$ 47'30	47.22489 AU
conjunction	-5328 Jan	19 j 08:17	19° $\mathring{A}$ 52'51	-15°-37'-17		-5320 Mar	28 j 00:13	0° $\mathring{A}$	
minimum elong	-5328 Jan	19 j 08:10	19° $\mathring{A}$ 52'51	15°37'36	retrograde	-5320 May	10 j 23:24	0° $\mathring{A}$ 20'43	
max. Earth dist.	-5328 Jan	22 j 03:50	19° $\mathring{A}$ 57'07	45.94364 AU		-5320 Jun	24 j 14:22	30° $\mathring{R}$ $\mathring{A}$	
retrograde	-5328 May	02 j 05:41	21° $\mathring{A}$ 32'37		min. Earth dist.	-5320 Jul	31 j 08:43	29° $\mathring{A}$ 20'26	45.38302 AU
min. Earth dist.	-5328 Jul	22 j 05:56	20° $\mathring{A}$ 31'31	44.10739 AU	opposition	-5320 Aug	02 j 17:01	29° $\mathring{A}$ 17'38	-17°-10'-32
opposition	-5328 Jul	24 j 21:52	20° $\mathring{A}$ 28'17	-16°-23'-15	direct	-5320 Oct	22 j 08:56	28° $\mathring{A}$ 16'09	
direct	-5328 Oct	13 j 08:52	19° $\mathring{A}$ 25'42						
					conjunction	-5319 Jan	28 j 16:44	29° $\mathring{A}$ 48'34	-16°-29'-42



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 6

Attention, astronomical year style is used: The year -5319 in astronomical counting style is the year 5320 BCE in historical counting style.

minimum elong	-5319 Jan 28 j 16:41	29° <del>2</del> 48'34	16°30'02	minimum elong	-5311 Feb 06 j 07:42	8° <del>3</del> 14'05	16°52'57
max. Earth dist.	-5319 Jan 31 j 04:07	29° <del>2</del> 52'12	47.36759 AU	max. Earth dist.	-5311 Feb 08 j 10:48	8° <del>3</del> 17'08	48.36940 AU
	-5319 Feb 05 j 12:02	0° <del>3</del>		retrograde	-5311 May 20 j 21:34	9° <del>3</del> 48'27	
retrograde	-5319 May 12 j 05:56	1° <del>3</del> 25'13		min. Earth dist.	-5311 Aug 10 j 09:13	8° <del>3</del> 48'50	46.51579 AU
min. Earth dist.	-5319 Aug 01 j 16:45	0° <del>3</del> 25'02	45.52391 AU	opposition	-5311 Aug 12 j 08:53	8° <del>3</del> 46'31	-17°-36'-19
opposition	-5319 Aug 04 j 00:40	0° <del>3</del> 22'16	-17°-14'-47	direct	-5311 Nov 01 j 01:20	7° <del>3</del> 45'56	
	-5319 Aug 23 j 04:24	30° <del>R</del> <del>2</del>					
direct	-5319 Oct 23 j 18:35	29° <del>2</del> 20'53		conjunction	-5310 Feb 07 j 15:12	9° <del>3</del> 16'11	-16°-54'00
	-5319 Dec 22 j 11:39	0° <del>3</del>		minimum elong	-5310 Feb 07 j 15:14	9° <del>3</del> 16'11	16°54'20
				max. Earth dist.	-5310 Feb 09 j 18:14	9° <del>3</del> 19'13	48.48019 AU
conjunction	-5318 Jan 30 j 01:04	0° <del>3</del> 53'01	-16°-33'-45	retrograde	-5310 May 22 j 02:40	10° <del>3</del> 50'19	
minimum elong	-5318 Jan 30 j 01:04	0° <del>3</del> 53'01	16°34'05	min. Earth dist.	-5310 Aug 11 j 17:25	9° <del>3</del> 50'46	46.62469 AU
max. Earth dist.	-5318 Feb 01 j 11:18	0° <del>3</del> 56'34	47.50533 AU	opposition	-5310 Aug 13 j 15:21	9° <del>3</del> 48'31	-17°-37'-28
retrograde	-5318 May 13 j 15:14	2° <del>3</del> 29'20		direct	-5310 Nov 02 j 09:36	8° <del>3</del> 48'04	
min. Earth dist.	-5318 Aug 03 j 02:28	1° <del>3</del> 29'10	45.66006 AU				
opposition	-5318 Aug 05 j 08:19	1° <del>3</del> 26'30	-17°-18'-42	conjunction	-5309 Feb 08 j 22:36	10° <del>3</del> 18'08	-16°-55'-4
direct	-5318 Oct 25 j 01:45	0° <del>3</del> 25'12		minimum elong	-5309 Feb 08 j 22:38	10° <del>3</del> 18'08	16°55'22
				max. Earth dist.	-5309 Feb 10 j 23:28	10° <del>3</del> 21'02	48.58674 AU
conjunction	-5317 Jan 31 j 09:20	1° <del>3</del> 57'02	-16°-37'-29	retrograde	-5309 May 23 j 07:22	11° <del>3</del> 52'02	
minimum elong	-5317 Jan 31 j 09:18	1° <del>3</del> 57'02	16°37'49	min. Earth dist.	-5309 Aug 13 j 00:21	10° <del>3</del> 52'36	46.72897 AU
max. Earth dist.	-5317 Feb 02 j 18:54	2° <del>3</del> 00'32	47.63869 AU	opposition	-5309 Aug 14 j 21:44	10° <del>3</del> 50'23	-17°-38'-20
retrograde	-5317 May 14 j 22:46	3° <del>3</del> 33'02		direct	-5309 Nov 03 j 18:29	9° <del>3</del> 50'01	
min. Earth dist.	-5317 Aug 04 j 10:23	2° <del>3</del> 32'56	45.79188 AU				
opposition	-5317 Aug 06 j 15:38	2° <del>3</del> 30'18	-17°-22'-17	conjunction	-5308 Feb 10 j 06:03	11° <del>3</del> 19'55	-16°-55'-50
direct	-5317 Oct 26 j 09:23	1° <del>3</del> 29'06		minimum elong	-5308 Feb 10 j 06:06	11° <del>3</del> 19'55	16°56'10
				max. Earth dist.	-5308 Feb 12 j 05:41	11° <del>3</del> 22'45	48.68821 AU
conjunction	-5316 Feb 01 j 17:22	3° <del>3</del> 00'39	-16°-40'-52	retrograde	-5308 May 23 j 13:53	12° <del>3</del> 53'36	
minimum elong	-5316 Feb 01 j 17:23	3° <del>3</del> 00'39	16°41'11	min. Earth dist.	-5308 Aug 13 j 09:09	11° <del>3</del> 54'09	46.82796 AU
max. Earth dist.	-5316 Feb 04 j 00:57	3° <del>3</del> 04'01	47.76804 AU	opposition	-5308 Aug 15 j 04:04	11° <del>3</del> 52'04	-17°-38'-54
retrograde	-5316 May 15 j 07:33	4° <del>3</del> 36'19		direct	-5308 Nov 04 j 02:19	10° <del>3</del> 51'47	
min. Earth dist.	-5316 Aug 04 j 18:32	3° <del>3</del> 36'17	45.92011 AU				
opposition	-5316 Aug 06 j 22:46	3° <del>3</del> 33'43	-17°-25'-30	conjunction	-5307 Feb 10 j 13:26	12° <del>3</del> 21'29	-16°-56'-20
direct	-5316 Oct 26 j 15:32	2° <del>3</del> 32'35		minimum elong	-5307 Feb 10 j 13:30	12° <del>3</del> 21'29	16°56'39
				max. Earth dist.	-5307 Feb 12 j 11:48	12° <del>3</del> 24'14	48.78447 AU
conjunction	-5315 Feb 02 j 01:21	4° <del>3</del> 03'54	-16°-43'-54	retrograde	-5307 May 24 j 21:00	13° <del>3</del> 54'57	
minimum elong	-5315 Feb 02 j 01:20	4° <del>3</del> 03'54	16°44'14	min. Earth dist.	-5307 Aug 14 j 15:56	12° <del>3</del> 55'33	46.92148 AU
max. Earth dist.	-5315 Feb 04 j 09:06	4° <del>3</del> 07'16	47.89404 AU	opposition	-5307 Aug 16 j 10:15	12° <del>3</del> 53'30	-17°-39'-11
retrograde	-5315 May 16 j 12:30	5° <del>3</del> 39'16		direct	-5307 Nov 05 j 08:38	11° <del>3</del> 53'17	
min. Earth dist.	-5315 Aug 06 j 03:05	4° <del>3</del> 39'16	46.04508 AU				
opposition	-5315 Aug 08 j 05:52	4° <del>3</del> 36'46	-17°-28'-23	conjunction	-5306 Feb 11 j 20:25	13° <del>3</del> 22'47	-16°-56'-34
direct	-5315 Oct 28 j 01:03	3° <del>3</del> 35'44		minimum elong	-5306 Feb 11 j 20:28	13° <del>3</del> 22'47	16°56'53
				max. Earth dist.	-5306 Feb 13 j 16:27	13° <del>3</del> 25'22	48.87534 AU
conjunction	-5314 Feb 03 j 08:57	5° <del>3</del> 06'48	-16°-46'-36	retrograde	-5306 May 26 j 06:13	14° <del>3</del> 56'00	
minimum elong	-5314 Feb 03 j 08:59	5° <del>3</del> 06'48	16°46'55	min. Earth dist.	-5306 Aug 15 j 23:51	13° <del>3</del> 56'36	47.00987 AU
max. Earth dist.	-5314 Feb 05 j 15:09	5° <del>3</del> 10'04	48.01717 AU	opposition	-5306 Aug 17 j 16:27	13° <del>3</del> 54'38	-17°-39'-12
retrograde	-5314 May 17 j 18:47	6° <del>3</del> 41'54		direct	-5306 Nov 06 j 12:50	12° <del>3</del> 54'28	
min. Earth dist.	-5314 Aug 07 j 09:50	5° <del>3</del> 42'02	46.16723 AU				
opposition	-5314 Aug 09 j 12:47	5° <del>3</del> 39'32	-17°-30'-53	conjunction	-5305 Feb 13 j 03:36	14° <del>3</del> 23'46	-16°-56'-31
direct	-5314 Oct 29 j 08:55	4° <del>3</del> 38'36		minimum elong	-5305 Feb 13 j 03:41	14° <del>3</del> 23'46	16°56'50
				max. Earth dist.	-5305 Feb 14 j 23:23	14° <del>3</del> 26'20	48.96129 AU
conjunction	-5313 Feb 04 j 16:38	6° <del>3</del> 09'26	-16°-48'-57	retrograde	-5305 May 27 j 11:41	15° <del>3</del> 56'43	
minimum elong	-5313 Feb 04 j 16:38	6° <del>3</del> 09'26	16°49'16	min. Earth dist.	-5305 Aug 17 j 07:19	14° <del>3</del> 57'18	47.09346 AU
max. Earth dist.	-5313 Feb 06 j 22:06	6° <del>3</del> 12'38	48.13746 AU	opposition	-5305 Aug 18 j 22:17	14° <del>3</del> 55'25	-17°-38'-56
retrograde	-5313 May 19 j 02:22	7° <del>3</del> 44'16		direct	-5305 Nov 07 j 19:48	13° <del>3</del> 55'17	
min. Earth dist.	-5313 Aug 08 j 18:32	6° <del>3</del> 44'27	46.28656 AU				
opposition	-5313 Aug 10 j 19:37	6° <del>3</del> 42'02	-17°-33'-2	conjunction	-5304 Feb 14 j 10:33	15° <del>3</del> 24'24	-16°-56'-11
direct	-5313 Oct 30 j 16:27	5° <del>3</del> 41'14		minimum elong	-5304 Feb 14 j 10:37	15° <del>3</del> 24'24	16°56'31
				max. Earth dist.	-5304 Feb 16 j 04:08	15° <del>3</del> 26'50	49.04291 AU
conjunction	-5312 Feb 06 j 00:20	7° <del>3</del> 11'51	-16°-50'-58	retrograde	-5304 May 27 j 17:19	16° <del>3</del> 57'06	
minimum elong	-5312 Feb 06 j 00:22	7° <del>3</del> 11'51	16°51'17	min. Earth dist.	-5304 Aug 17 j 13:26	15° <del>3</del> 57'44	47.17303 AU
max. Earth dist.	-5312 Feb 08 j 05:24	7° <del>3</del> 15'01	48.25504 AU	opposition	-5304 Aug 19 j 04:04	15° <del>3</del> 55'52	-17°-38'-22
retrograde	-5312 May 19 j 11:25	8° <del>3</del> 46'26		direct	-5304 Nov 08 j 02:18	14° <del>3</del> 55'46	
min. Earth dist.	-5312 Aug 09 j 01:30	7° <del>3</del> 46'44	46.40284 AU				
opposition	-5312 Aug 11 j 02:15	7° <del>3</del> 44'21	-17°-34'-51	conjunction	-5303 Feb 14 j 17:18	16° <del>3</del> 24'41	-16°-55'-34
direct	-5312 Oct 30 j 21:49	6° <del>3</del> 43'39		minimum elong	-5303 Feb 14 j 17:24	16° <del>3</del> 24'41	16°55'53
				max. Earth dist.	-5303 Feb 16 j 10:11	16° <del>3</del> 27'05	49.12066 AU
conjunction	-5311 Feb 06 j 07:41	8° <del>3</del> 14'05	-16°-52'-38	retrograde	-5303 May 28 j 20:54	17° <del>3</del> 57'10	



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 7

Attention, astronomical year style is used: The year -5303 in astronomical counting style is the year 5304 BCE in historical counting style.

min. Earth dist.	-5303 Aug 18 j 21:11	16° $\overline{57}$ '46	47.24902 AU	conjunction	-5294 Feb 24 j 04:15	25° $\overline{19}$ '03	-16°-36'-57
opposition	-5303 Aug 20 j 09:50	16° $\overline{56}$ '00	-17°-37'-29	minimum elong	-5294 Feb 24 j 04:23	25° $\overline{19}$ '03	16°37'14
direct	-5303 Nov 09 j 10:59	15° $\overline{55}$ '57		max. Earth dist.	-5294 Feb 25 j 09:17	25° $\overline{20}$ '43	49.66630 AU
				retrograde	-5294 Jun 07 j 05:57	26° $\overline{50}$ '02	
conjunction	-5302 Feb 16 j 00:05	17° $\overline{24}$ '40	-16°-54'-39	min. Earth dist.	-5294 Aug 28 j 07:00	25° $\overline{50}$ '55	47.77287 AU
minimum elong	-5302 Feb 16 j 00:09	17° $\overline{24}$ '41	16°54'57	opposition	-5294 Aug 29 j 09:40	25° $\overline{49}$ '38	-17°-16'-21
max. Earth dist.	-5302 Feb 17 j 16:17	17° $\overline{27}$ '01	49.19531 AU	direct	-5294 Nov 18 j 11:36	24° $\overline{50}$ '05	
retrograde	-5302 May 30 j 02:53	18° $\overline{56}$ '57					
min. Earth dist.	-5302 Aug 20 j 02:49	17° $\overline{57}$ '36	47.32192 AU	conjunction	-5293 Feb 25 j 10:37	26° $\overline{17}$ '49	-16°-33'-35
opposition	-5302 Aug 21 j 15:20	17° $\overline{55}$ '51	-17°-36'-18	minimum elong	-5293 Feb 25 j 10:44	26° $\overline{17}$ '49	16°33'53
direct	-5302 Nov 10 j 17:34	16° $\overline{55}$ '50		max. Earth dist.	-5293 Feb 26 j 14:36	26° $\overline{19}$ '25	49.70425 AU
				retrograde	-5293 Jun 08 j 08:47	27° $\overline{48}$ '39	
conjunction	-5301 Feb 17 j 06:40	18° $\overline{24}$ '24	-16°-53'-25	opposition	-5293 Aug 30 j 14:44	26° $\overline{48}$ '19	-17°-12'-41
minimum elong	-5301 Feb 17 j 06:46	18° $\overline{24}$ '25	16°53'44	min. Earth dist.	-5293 Aug 29 j 14:25	26° $\overline{49}$ '28	47.80794 AU
max. Earth dist.	-5301 Feb 18 j 21:02	18° $\overline{26}$ '39	49.26697 AU	direct	-5293 Nov 19 j 19:30	25° $\overline{48}$ '47	
retrograde	-5301 May 31 j 12:17	19° $\overline{56}$ '29					
min. Earth dist.	-5301 Aug 21 j 09:42	18° $\overline{57}$ '10	47.39195 AU	conjunction	-5292 Feb 26 j 16:56	27° $\overline{16}$ '23	-16°-29'-57
opposition	-5301 Aug 22 j 20:56	18° $\overline{55}$ '28	-17°-34'-48	minimum elong	-5292 Feb 26 j 17:05	27° $\overline{16}$ '24	16°30'15
direct	-5301 Nov 11 j 20:14	17° $\overline{55}$ '31		max. Earth dist.	-5292 Feb 27 j 19:52	27° $\overline{17}$ '56	49.73788 AU
				retrograde	-5292 Jun 08 j 13:08	28° $\overline{47}$ '05	
conjunction	-5300 Feb 18 j 13:23	19° $\overline{23}$ '57	-16°-51'-53	opposition	-5292 Aug 30 j 19:27	27° $\overline{46}$ '47	-17°-8'-45
minimum elong	-5300 Feb 18 j 13:28	19° $\overline{23}$ '57	16°52'11	min. Earth dist.	-5292 Aug 29 j 19:26	27° $\overline{47}$ '56	47.83887 AU
max. Earth dist.	-5300 Feb 20 j 03:43	19° $\overline{26}$ '10	49.33575 AU	direct	-5292 Nov 20 j 02:29	26° $\overline{47}$ '16	
retrograde	-5300 May 31 j 17:42	20° $\overline{55}$ '49					
min. Earth dist.	-5300 Aug 21 j 16:15	19° $\overline{56}$ '32	47.45886 AU	conjunction	-5291 Feb 26 j 22:59	28° $\overline{14}$ '47	-16°-26'-4
opposition	-5300 Aug 23 j 02:17	19° $\overline{54}$ '54	-17°-32'-59	minimum elong	-5291 Feb 26 j 23:07	28° $\overline{14}$ '48	16°26'22
direct	-5300 Nov 12 j 02:28	18° $\overline{55}$ '01		max. Earth dist.	-5291 Feb 27 j 23:53	28° $\overline{16}$ '13	49.76765 AU
				retrograde	-5291 Jun 09 j 22:12	29° $\overline{45}$ '21	
conjunction	-5299 Feb 18 j 19:52	20° $\overline{23}$ '20	-16°-50'-4	min. Earth dist.	-5291 Aug 31 j 01:52	28° $\overline{46}$ '10	47.86635 AU
minimum elong	-5299 Feb 18 j 19:59	20° $\overline{23}$ '20	16°50'23	opposition	-5291 Sep 01 j 00:21	28° $\overline{45}$ '06	-17°-4'-33
max. Earth dist.	-5299 Feb 20 j 08:19	20° $\overline{25}$ '27	49.40152 AU	direct	-5291 Nov 21 j 04:28	27° $\overline{45}$ '36	
retrograde	-5299 Jun 01 j 22:42	21° $\overline{55}$ '02					
min. Earth dist.	-5299 Aug 22 j 21:59	20° $\overline{55}$ '50	47.52260 AU	conjunction	-5290 Feb 28 j 05:01	29° $\overline{13}$ '01	-16°-21'-54
opposition	-5299 Aug 24 j 07:39	20° $\overline{54}$ '13	-17°-30'-53	minimum elong	-5290 Feb 28 j 05:11	29° $\overline{13}$ '02	16°22'11
direct	-5299 Nov 13 j 08:37	19° $\overline{54}$ '25		max. Earth dist.	-5290 Mar 01 j 05:59	29° $\overline{14}$ '27	49.79421 AU
					-5290 Apr 05 j 02:03	0° $\approx$	
conjunction	-5298 Feb 20 j 02:15	21° $\overline{22}$ '37	-16°-47'-57	retrograde	-5290 Jun 11 j 03:59	0° $\approx$ 43'27	
minimum elong	-5298 Feb 20 j 02:22	21° $\overline{22}$ '37	16°48'15		-5290 Aug 18 j 09:35	30° $\overline{R}$ $\overline{2}$	
max. Earth dist.	-5298 Feb 21 j 13:56	21° $\overline{24}$ '41	49.46374 AU	min. Earth dist.	-5290 Sep 01 j 07:37	29° $\overline{44}$ '16	47.89060 AU
retrograde	-5298 Jun 03 j 03:18	22° $\overline{54}$ '12		opposition	-5290 Sep 02 j 05:07	29° $\overline{43}$ '15	-17°00'-3
min. Earth dist.	-5298 Aug 24 j 05:34	21° $\overline{54}$ '59	47.58246 AU	direct	-5290 Nov 22 j 09:05	28° $\overline{43}$ '46	
opposition	-5298 Aug 25 j 13:04	21° $\overline{53}$ '28	-17°-28'-30		-5289 Feb 21 j 08:28	0° $\approx$	
direct	-5298 Nov 14 j 16:01	20° $\overline{53}$ '45					
				conjunction	-5289 Mar 01 j 11:03	0° $\approx$ 11'07	-16°-17'-28
conjunction	-5297 Feb 21 j 08:53	22° $\overline{21}$ '51	-16°-45'-35	minimum elong	-5289 Mar 01 j 11:11	0° $\approx$ 11'08	16°17'44
minimum elong	-5297 Feb 21 j 09:00	22° $\overline{21}$ '51	16°45'53	max. Earth dist.	-5289 Mar 02 j 10:01	0° $\approx$ 12'26	49.81785 AU
max. Earth dist.	-5297 Feb 22 j 19:23	22° $\overline{23}$ '51	49.52193 AU	retrograde	-5289 Jun 12 j 09:05	1° $\approx$ 41'26	
retrograde	-5297 Jun 04 j 09:22	23° $\overline{53}$ '17		opposition	-5289 Sep 03 j 09:44	0° $\approx$ 41'16	-16°-55'-16
min. Earth dist.	-5297 Aug 25 j 11:14	22° $\overline{54}$ '09	47.63781 AU	min. Earth dist.	-5289 Sep 02 j 12:40	0° $\approx$ 42'17	47.91205 AU
opposition	-5297 Aug 26 j 18:09	22° $\overline{52}$ '40	-17°-25'-50		-5289 Oct 13 j 02:29	30° $\overline{R}$ $\overline{2}$	
direct	-5297 Nov 15 j 21:50	21° $\overline{53}$ '00		direct	-5289 Nov 23 j 13:55	29° $\overline{41}$ '49	
					-5288 Jan 03 j 20:18	0° $\approx$	
conjunction	-5296 Feb 22 j 15:25	23° $\overline{21}$ '01	-16°-42'-57				
minimum elong	-5296 Feb 22 j 15:32	23° $\overline{21}$ '01	16°43'14	conjunction	-5288 Mar 01 j 17:08	1° $\approx$ 09'07	-16°-12'-45
max. Earth dist.	-5296 Feb 23 j 23:31	23° $\overline{22}$ '52	49.57524 AU	minimum elong	-5288 Mar 01 j 17:18	1° $\approx$ 09'08	16°13'02
retrograde	-5296 Jun 04 j 17:54	24° $\overline{52}$ '19		max. Earth dist.	-5288 Mar 02 j 15:28	1° $\approx$ 10'24	49.83858 AU
opposition	-5296 Aug 26 j 23:29	23° $\overline{51}$ '47	-17°-22'-56	retrograde	-5288 Jun 12 j 11:45	2° $\approx$ 39'20	
min. Earth dist.	-5296 Aug 25 j 18:32	23° $\overline{53}$ '11	47.68814 AU	opposition	-5288 Sep 03 j 14:30	1° $\approx$ 39'14	-16°-50'-12
direct	-5296 Nov 16 j 01:11	22° $\overline{52}$ '11		min. Earth dist.	-5288 Sep 02 j 19:18	1° $\approx$ 40'09	47.93051 AU
				direct	-5288 Nov 23 j 21:40	0° $\approx$ 39'48	
conjunction	-5295 Feb 22 j 21:53	24° $\overline{20}$ '06	-16°-40'-4				
minimum elong	-5295 Feb 22 j 22:00	24° $\overline{20}$ '06	16°40'23	conjunction	-5287 Mar 02 j 23:01	2° $\approx$ 07'04	-16°-7'-45
max. Earth dist.	-5295 Feb 24 j 05:29	24° $\overline{21}$ '55	49.62336 AU	minimum elong	-5287 Mar 02 j 23:10	2° $\approx$ 07'05	16°08'02
retrograde	-5295 Jun 05 j 23:54	25° $\overline{51}$ '14		max. Earth dist.	-5287 Mar 03 j 20:27	2° $\approx$ 08'18	49.85643 AU
min. Earth dist.	-5295 Aug 27 j 01:16	24° $\overline{52}$ '06	47.73302 AU	retrograde	-5287 Jun 13 j 15:52	3° $\approx$ 37'12	
opposition	-5295 Aug 28 j 04:40	24° $\overline{50}$ '47	-17°-19'-46	opposition	-5287 Sep 04 j 19:05	2° $\approx$ 37'10	-16°-44'-52
direct	-5295 Nov 17 j 06:24	23° $\overline{51}$ '13		min. Earth dist.	-5287 Sep 03 j 23:59	2° $\approx$ 38'04	47.94579 AU



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 8

Attention, astronomical year style is used: The year -5287 in astronomical counting style is the year 5288 BCE in historical counting style.

direct	-5287 Nov 25 j 04:09	1°≈37'47		minimum elong	-5278 Mar 12 j 05:29	10°≈46'49	15°12'12
				max. Earth dist.	-5278 Mar 12 j 13:19	10°≈47'16	49.81621 AU
conjunction	-5286 Mar 04 j 04:59	3°≈05'00	-16°-2'-30	retrograde	-5278 Jun 22 j 17:52	12°≈16'17	
minimum elong	-5286 Mar 04 j 05:09	3°≈05'01	16°02'48	opposition	-5278 Sep 13 j 11:55	11°≈16'31	-15°-45'-43
max. Earth dist.	-5286 Mar 05 j 00:28	3°≈06'07	49.87084 AU	min. Earth dist.	-5278 Sep 13 j 05:53	11°≈16'48	47.87611 AU
retrograde	-5286 Jun 14 j 23:26	4°≈35'04		direct	-5278 Dec 03 j 23:32	10°≈17'05	
opposition	-5286 Sep 05 j 23:43	3°≈35'06	-16°-39'-15				
min. Earth dist.	-5286 Sep 05 j 06:34	3°≈35'55	47.95744 AU	conjunction	-5277 Mar 13 j 11:17	11°≈44'10	-15°-4'-31
direct	-5286 Nov 26 j 07:22	2°≈35'45		minimum elong	-5277 Mar 13 j 11:30	11°≈44'11	15°04'46
				max. Earth dist.	-5277 Mar 13 j 18:20	11°≈44'35	49.79067 AU
conjunction	-5285 Mar 05 j 11:11	4°≈02'57	-15°-57'00	retrograde	-5277 Jun 23 j 21:26	13°≈13'38	
minimum elong	-5285 Mar 05 j 11:21	4°≈02'57	15°57'17	opposition	-5277 Sep 14 j 16:17	12°≈13'53	-15°-37'-53
max. Earth dist.	-5285 Mar 06 j 06:15	4°≈04'02	49.88126 AU	min. Earth dist.	-5277 Sep 14 j 10:19	12°≈14'10	47.84778 AU
retrograde	-5285 Jun 16 j 06:21	5°≈32'56		direct	-5277 Dec 05 j 06:07	11°≈14'27	
opposition	-5285 Sep 07 j 04:20	4°≈33'01	-16°-33'-24				
min. Earth dist.	-5285 Sep 06 j 12:31	4°≈33'47	47.96455 AU	conjunction	-5276 Mar 13 j 17:08	12°≈41'34	-14°-56'-50
direct	-5285 Nov 27 j 11:15	3°≈33'42		minimum elong	-5276 Mar 13 j 17:20	12°≈41'34	14°57'04
				max. Earth dist.	-5276 Mar 13 j 22:16	12°≈41'51	49.76199 AU
conjunction	-5284 Mar 05 j 17:16	5°≈00'53	-15°-51'-16	retrograde	-5276 Jun 24 j 04:18	14°≈11'01	
minimum elong	-5284 Mar 05 j 17:26	5°≈00'54	15°51'32	opposition	-5276 Sep 14 j 20:44	13°≈11'18	-15°-29'-47
max. Earth dist.	-5284 Mar 06 j 09:42	5°≈01'49	49.88691 AU	min. Earth dist.	-5276 Sep 14 j 16:30	13°≈11'30	47.81642 AU
retrograde	-5284 Jun 16 j 13:37	6°≈30'47		direct	-5276 Dec 05 j 09:23	12°≈11'52	
opposition	-5284 Sep 07 j 08:52	5°≈30'56	-16°-27'-18				
min. Earth dist.	-5284 Sep 06 j 18:03	5°≈31'38	47.96667 AU	conjunction	-5275 Mar 14 j 23:07	13°≈39'01	-14°-48'-53
direct	-5284 Nov 27 j 14:42	4°≈31'37		minimum elong	-5275 Mar 14 j 23:20	13°≈39'02	14°49'09
				max. Earth dist.	-5275 Mar 15 j 04:07	13°≈39'18	49.73030 AU
conjunction	-5283 Mar 06 j 23:25	5°≈58'47	-15°-45'-17		-5275 May 27 j 23:06	15°≈	
minimum elong	-5283 Mar 06 j 23:36	5°≈58'48	15°45'33	retrograde	-5275 Jun 25 j 10:53	15°≈08'29	
max. Earth dist.	-5283 Mar 07 j 14:38	5°≈59'39	49.88728 AU		-5275 Jul 23 j 23:59	15°≈	
retrograde	-5283 Jun 17 j 17:07	7°≈28'37		opposition	-5275 Sep 16 j 01:07	14°≈08'48	-15°-21'-24
opposition	-5283 Sep 08 j 13:34	6°≈28'47	-16°-20'-59	min. Earth dist.	-5275 Sep 15 j 21:45	14°≈08'58	47.78176 AU
min. Earth dist.	-5283 Sep 08 j 01:10	6°≈29'23	47.96336 AU	direct	-5275 Dec 06 j 13:02	13°≈09'22	
direct	-5283 Nov 28 j 21:07	5°≈29'28					
				conjunction	-5274 Mar 16 j 04:55	14°≈36'36	-14°-40'-41
conjunction	-5282 Mar 08 j 05:26	6°≈56'36	-15°-39'-5	minimum elong	-5274 Mar 16 j 05:07	14°≈36'37	14°40'55
minimum elong	-5282 Mar 08 j 05:37	6°≈56'37	15°39'22	max. Earth dist.	-5274 Mar 16 j 07:41	14°≈36'45	49.69524 AU
max. Earth dist.	-5282 Mar 08 j 19:13	6°≈57'23	49.88240 AU		-5274 Apr 02 j 13:44	15°≈	
retrograde	-5282 Jun 18 j 20:01	8°≈26'21		retrograde	-5274 Jun 26 j 18:46	16°≈06'04	
opposition	-5282 Sep 09 j 18:06	7°≈26'33	-16°-14'-25	opposition	-5274 Sep 17 j 05:32	15°≈06'26	-15°-12'-46
min. Earth dist.	-5282 Sep 09 j 06:16	7°≈27'07	47.95471 AU	min. Earth dist.	-5274 Sep 17 j 03:02	15°≈06'33	47.74346 AU
direct	-5282 Nov 30 j 04:39	6°≈27'13			-5274 Sep 22 j 20:36	15°≈	
				direct	-5274 Dec 07 j 15:32	14°≈07'00	
conjunction	-5281 Mar 09 j 11:29	7°≈54'19	-15°-32'-40		-5273 Feb 19 j 14:45	15°≈	
minimum elong	-5281 Mar 09 j 11:41	7°≈54'20	15°32'56				
max. Earth dist.	-5281 Mar 09 j 22:49	7°≈54'58	49.87228 AU	conjunction	-5273 Mar 17 j 11:03	15°≈34'19	-14°-32'-14
retrograde	-5281 Jun 20 j 03:08	9°≈23'59		minimum elong	-5273 Mar 17 j 11:16	15°≈34'20	14°32'29
opposition	-5281 Sep 10 j 22:35	8°≈24'12	-16°-7'-38	max. Earth dist.	-5273 Mar 17 j 12:51	15°≈34'25	49.65601 AU
min. Earth dist.	-5281 Sep 10 j 12:48	8°≈24'40	47.94116 AU	retrograde	-5273 Jun 27 j 23:23	17°≈03'48	
direct	-5281 Dec 01 j 08:20	7°≈24'50		opposition	-5273 Sep 18 j 09:57	16°≈04'12	-15°-3'-54
				min. Earth dist.	-5273 Sep 18 j 09:49	16°≈04'12	47.70065 AU
conjunction	-5280 Mar 09 j 17:38	8°≈51'55	-15°-26'00	direct	-5273 Dec 08 j 20:59	15°≈04'46	
minimum elong	-5280 Mar 09 j 17:48	8°≈51'55	15°26'17				
max. Earth dist.	-5280 Mar 10 j 04:34	8°≈52'32	49.85752 AU	conjunction	-5272 Mar 17 j 17:13	16°≈32'09	-14°-23'-33
retrograde	-5280 Jun 20 j 08:57	10°≈21'30		minimum elong	-5272 Mar 17 j 17:26	16°≈32'10	14°23'47
opposition	-5280 Sep 11 j 03:03	9°≈21'43	-16°00'-35	max. Earth dist.	-5272 Mar 17 j 17:31	16°≈32'10	49.61216 AU
min. Earth dist.	-5280 Sep 10 j 18:29	9°≈22'08	47.92311 AU	retrograde	-5272 Jun 28 j 01:51	18°≈01'40	
direct	-5280 Dec 01 j 12:31	8°≈22'20		opposition	-5272 Sep 18 j 14:23	17°≈02'05	-14°-54'-47
				min. Earth dist.	-5272 Sep 18 j 14:47	17°≈02'04	47.65283 AU
conjunction	-5279 Mar 10 j 23:22	9°≈49'24	-15°-19'-6	direct	-5272 Dec 09 j 04:39	16°≈02'38	
minimum elong	-5279 Mar 10 j 23:34	9°≈49'24	15°19'21				
max. Earth dist.	-5279 Mar 11 j 08:11	9°≈49'54	49.83867 AU	conjunction	-5271 Mar 18 j 23:11	17°≈30'05	-14°-14'-39
retrograde	-5279 Jun 21 j 15:08	11°≈18'56		minimum elong	-5271 Mar 18 j 23:24	17°≈30'06	14°14'54
opposition	-5279 Sep 12 j 07:29	10°≈19'09	-15°-53'-17	max. Earth dist.	-5271 Mar 18 j 20:58	17°≈29'57	49.56296 AU
min. Earth dist.	-5279 Sep 11 j 23:34	10°≈19'32	47.90133 AU	retrograde	-5271 Jun 29 j 08:06	18°≈59'38	
direct	-5279 Dec 02 j 16:16	9°≈19'44		opposition	-5271 Sep 19 j 19:01	18°≈00'02	-14°-45'-26
				min. Earth dist.	-5271 Sep 19 j 21:38	17°≈59'55	47.59965 AU
conjunction	-5278 Mar 12 j 05:19	10°≈46'48	-15°-11'-56	direct	-5271 Dec 10 j 09:18	17°≈00'33	



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Attention, astronomical year style is used: The year -5270 in astronomical counting style is the year 5271 BCE in historical counting style.

conjunction	-5270 Mar 20 j 05:28	18°28'04"	-14°-5'-31"	retrograde	-5262 Jul 08 j 09:17	27°41'22"	
minimum elong	-5270 Mar 20 j 05:41	18°28'04"	14°05'45"	opposition	-5262 Sep 28 j 11:38	26°41'29"	-13°-10'-1"
max. Earth dist.	-5270 Mar 20 j 02:38	18°27'54"	49.50845 AU	min. Earth dist.	-5262 Sep 29 j 00:05	26°40'53"	46.93368 AU
retrograde	-5270 Jun 30 j 14:47	19°57'37"		direct	-5262 Dec 19 j 06:05	25°41'25"	
opposition	-5270 Sep 20 j 23:27	18°58'00"	-14°-35'-52"				
min. Earth dist.	-5270 Sep 21 j 03:22	18°57'49"	47.54104 AU	conjunction	-5261 Mar 29 j 13:22	27°09'50"	-12°-32'-16"
direct	-5270 Dec 11 j 12:48	17°58'27"		minimum elong	-5261 Mar 29 j 13:35	27°09'51"	12°32'28"
				max. Earth dist.	-5261 Mar 28 j 21:44	27°08'57"	48.83937 AU
conjunction	-5269 Mar 21 j 11:39	19°26'01"	-13°-56'-10"	retrograde	-5261 Jul 09 j 14:56	28°39'51"	
minimum elong	-5269 Mar 21 j 11:51	19°26'02"	13°56'25"	opposition	-5261 Sep 29 j 16:27	27°39'57"	-12°-58'-5"
max. Earth dist.	-5269 Mar 21 j 06:10	19°25'43"	49.44877 AU	min. Earth dist.	-5261 Sep 30 j 07:04	27°39'15"	46.84279 AU
retrograde	-5269 Jul 01 j 22:23	20°55'35"		direct	-5261 Dec 20 j 11:26	26°39'50"	
opposition	-5269 Sep 22 j 03:56	19°55'56"	-14°-26'-3"				
min. Earth dist.	-5269 Sep 22 j 08:59	19°55'41"	47.47754 AU	conjunction	-5260 Mar 29 j 19:58	28°08'26"	-12°-20'-38"
direct	-5269 Dec 12 j 15:44	18°56'19"		minimum elong	-5260 Mar 29 j 20:12	28°08'27"	12°20'50"
				max. Earth dist.	-5260 Mar 29 j 03:53	28°07'31"	48.74769 AU
conjunction	-5268 Mar 21 j 17:50	20°23'57"	-13°-46'-35"	retrograde	-5260 Jul 09 j 21:35	29°38'34"	
minimum elong	-5268 Mar 21 j 18:04	20°23'58"	13°46'48"	opposition	-5260 Sep 29 j 21:14	28°38'40"	-12°-45'-54"
max. Earth dist.	-5268 Mar 21 j 11:19	20°23'35"	49.38428 AU	min. Earth dist.	-5260 Sep 30 j 12:58	28°37'54"	46.74713 AU
retrograde	-5268 Jul 02 j 01:42	21°53'30"		direct	-5260 Dec 20 j 15:41	27°38'29"	
opposition	-5268 Sep 22 j 08:26	20°53'49"	-14°-15'-59"	max. Earth dist.	-5259 Mar 30 j 07:45	29°06'11"	48.65114 AU
min. Earth dist.	-5268 Sep 22 j 15:29	20°53'28"	47.40953 AU				
direct	-5268 Dec 12 j 22:51	19°54'07"		conjunction	-5259 Mar 31 j 02:32	29°07'16"	-12°-8'-45"
				minimum elong	-5259 Mar 31 j 02:45	29°07'17"	12°08'56"
conjunction	-5267 Mar 22 j 23:58	21°21'49"	-13°-36'-44"		-5259 May 10 j 21:45	0°	
minimum elong	-5267 Mar 23 j 00:10	21°21'50"	13°36'58"	retrograde	-5259 Jul 11 j 06:23	0°37'31"	
max. Earth dist.	-5267 Mar 22 j 16:20	21°21'23"	49.31583 AU		-5259 Sep 11 j 05:32	30°	
retrograde	-5267 Jul 03 j 04:18	22°51'23"		opposition	-5259 Oct 01 j 02:07	29°37'35"	-12°-33'-28"
opposition	-5267 Sep 23 j 12:48	21°51'39"	-14°-5'-40"	min. Earth dist.	-5259 Oct 01 j 19:05	29°36'46"	46.64652 AU
min. Earth dist.	-5267 Sep 23 j 20:05	21°51'18"	47.33780 AU	direct	-5259 Dec 21 j 17:59	28°37'19"	
direct	-5267 Dec 14 j 06:18	20°51'52"			-5258 Mar 27 j 19:44	0°	
conjunction	-5266 Mar 24 j 05:59	22°19'39"	-13°-26'-39"	conjunction	-5258 Apr 01 j 09:15	0°06'17"	-11°-56'-38"
minimum elong	-5266 Mar 24 j 06:13	22°19'40"	13°26'52"	minimum elong	-5258 Apr 01 j 09:28	0°06'18"	11°56'50"
max. Earth dist.	-5266 Mar 23 j 20:25	22°19'06"	49.24380 AU	max. Earth dist.	-5258 Mar 31 j 13:14	0°05'08"	48.54939 AU
retrograde	-5266 Jul 04 j 09:52	23°49'15"		retrograde	-5258 Jul 12 j 11:33	1°36'40"	
opposition	-5266 Sep 24 j 17:23	22°49'28"	-13°-55'-5"	opposition	-5258 Oct 02 j 07:08	0°36'40"	-12°-20'-47"
min. Earth dist.	-5266 Sep 25 j 02:30	22°49'01"	47.26282 AU	min. Earth dist.	-5258 Oct 03 j 02:17	0°35'44"	46.54063 AU
direct	-5266 Dec 15 j 11:16	21°49'37"			-5258 Nov 05 j 05:30	30°	
				direct	-5258 Dec 23 j 00:38	29°36'20"	
conjunction	-5265 Mar 25 j 12:17	23°17'28"	-13°-16'-18"		-5257 Feb 08 j 13:48	0°	
minimum elong	-5265 Mar 25 j 12:30	23°17'29"	13°16'30"				
max. Earth dist.	-5265 Mar 25 j 02:32	23°16'55"	49.16874 AU	conjunction	-5257 Apr 02 j 16:04	1°05'28"	-11°-44'-17"
retrograde	-5265 Jul 05 j 15:15	24°47'07"		minimum elong	-5257 Apr 02 j 16:18	1°05'29"	11°44'27"
opposition	-5265 Sep 25 j 21:49	23°47'18"	-13°-44'-14"	max. Earth dist.	-5257 Apr 01 j 18:35	1°04'14"	48.44268 AU
min. Earth dist.	-5265 Sep 26 j 07:34	23°46'50"	47.18483 AU	retrograde	-5257 Jul 13 j 15:23	2°35'57"	
direct	-5265 Dec 16 j 16:23	22°47'22"		opposition	-5257 Oct 03 j 11:58	1°35'54"	-12°-7'-51"
				min. Earth dist.	-5257 Oct 04 j 07:38	1°34'57"	46.42991 AU
conjunction	-5264 Mar 25 j 18:26	24°15'21"	-13°-5'-41"	direct	-5257 Dec 24 j 08:35	0°35'27"	
minimum elong	-5264 Mar 25 j 18:40	24°15'22"	13°05'54"				
max. Earth dist.	-5264 Mar 25 j 06:38	24°14'40"	49.09092 AU	conjunction	-5256 Apr 02 j 22:52	2°04'47"	-11°-31'-41"
retrograde	-5264 Jul 05 j 23:46	25°45'03"		minimum elong	-5256 Apr 02 j 23:05	2°04'48"	11°31'52"
opposition	-5264 Sep 26 j 02:25	24°45'12"	-13°-33'-6"	max. Earth dist.	-5256 Apr 01 j 23:07	2°03'25"	48.33123 AU
min. Earth dist.	-5264 Sep 26 j 12:50	24°44'42"	47.10418 AU	retrograde	-5256 Jul 13 j 20:54	3°35'24"	
direct	-5264 Dec 16 j 18:23	23°45'13"		opposition	-5256 Oct 03 j 17:05	2°35'16"	-11°-54'-40"
				min. Earth dist.	-5256 Oct 04 j 14:54	2°34'13"	46.31489 AU
conjunction	-5263 Mar 27 j 00:34	25°13'20"	-12°-54'-49"	direct	-5256 Dec 24 j 14:29	1°34'43"	
minimum elong	-5263 Mar 27 j 00:47	25°13'20"	12°55'01"	max. Earth dist.	-5255 Apr 03 j 05:37	3°02'50"	48.21581 AU
max. Earth dist.	-5263 Mar 26 j 12:13	25°12'38"	49.01028 AU				
retrograde	-5263 Jul 07 j 05:46	26°43'07"		conjunction	-5255 Apr 04 j 05:37	3°04'13"	-11°-18'-50"
opposition	-5263 Sep 27 j 07:08	25°43'15"	-13°-21'-41"	minimum elong	-5255 Apr 04 j 05:51	3°04'14"	11°19'00"
min. Earth dist.	-5263 Sep 27 j 19:20	25°42'39"	47.02057 AU	retrograde	-5255 Jul 15 j 02:18	4°34'59"	
direct	-5263 Dec 17 j 23:15	24°43'13"		opposition	-5255 Oct 04 j 22:09	3°34'46"	-11°-41'-13"
				min. Earth dist.	-5255 Oct 05 j 20:34	3°33'41"	46.19604 AU
conjunction	-5262 Mar 28 j 06:54	26°11'29"	-12°-43'-40"	direct	-5255 Dec 25 j 20:34	2°34'06"	
minimum elong	-5262 Mar 28 j 07:08	26°11'29"	12°43'53"	max. Earth dist.	-5254 Apr 04 j 10:15	4°02'17"	48.09691 AU
max. Earth dist.	-5262 Mar 27 j 17:29	26°10'43"	48.92670 AU				



Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 10

Attention, astronomical year style is used: The year -5254 in astronomical counting style is the year 5255 BCE in historical counting style.

conjunction	-5254 Apr 05 j 12:27	4° <del>✕</del> 03'48	-11°-5'-43	opposition	-5246 Oct 14 j 00:10	12° <del>✕</del> 41'19	-9°-27'-28
minimum elong	-5254 Apr 05 j 12:40	4° <del>✕</del> 03'49	11°05'53	min. Earth dist.	-5246 Oct 15 j 10:03	12° <del>✕</del> 39'38	44.98097 AU
retrograde	-5254 Jul 16 j 11:52	5° <del>✕</del> 34'43		direct	-5245 Jan 03 j 23:39	11° <del>✕</del> 39'37	
opposition	-5254 Oct 06 j 03:11	4° <del>✕</del> 34'25	-11°-27'-29	max. Earth dist.	-5245 Apr 13 j 17:58	13° <del>✕</del> 09'30	46.87845 AU
min. Earth dist.	-5254 Oct 07 j 02:36	4° <del>✕</del> 33'17	46.07408 AU				
direct	-5254 Dec 26 j 22:41	3° <del>✕</del> 33'38		conjunction	-5245 Apr 15 j 07:53	13° <del>✕</del> 11'44	-8°-55'-37
				minimum elong	-5245 Apr 15 j 08:05	13° <del>✕</del> 11'45	8°55'46
conjunction	-5253 Apr 06 j 19:33	5° <del>✕</del> 03'33	-10°-52'-20	retrograde	-5245 Jul 25 j 23:17	14° <del>✕</del> 44'32	
minimum elong	-5253 Apr 06 j 19:47	5° <del>✕</del> 03'34	10°52'30	opposition	-5245 Oct 15 j 06:20	13° <del>✕</del> 43'30	-9°-11'-15
max. Earth dist.	-5253 Apr 05 j 16:46	5° <del>✕</del> 02'00	47.97492 AU	min. Earth dist.	-5245 Oct 16 j 16:59	13° <del>✕</del> 41'47	44.82419 AU
retrograde	-5253 Jul 17 j 19:39	6° <del>✕</del> 34'37		direct	-5244 Jan 05 j 07:48	12° <del>✕</del> 41'39	
opposition	-5253 Oct 07 j 08:31	5° <del>✕</del> 34'15	-11°-13'-28	max. Earth dist.	-5244 Apr 13 j 23:27	14° <del>✕</del> 11'40	46.72092 AU
min. Earth dist.	-5253 Oct 08 j 09:33	5° <del>✕</del> 33'02	45.94918 AU				
direct	-5253 Dec 28 j 03:36	4° <del>✕</del> 33'22		conjunction	-5244 Apr 15 j 15:52	14° <del>✕</del> 14'03	-8°-39'-52
max. Earth dist.	-5252 Apr 05 j 22:40	6° <del>✕</del> 01'54	47.85032 AU	minimum elong	-5244 Apr 15 j 16:04	14° <del>✕</del> 14'04	8°39'59
				retrograde	-5244 Jul 26 j 08:26	15° <del>✕</del> 47'06	
conjunction	-5252 Apr 07 j 02:32	6° <del>✕</del> 03'31	-10°-38'-41	opposition	-5244 Oct 15 j 12:35	14° <del>✕</del> 45'56	-8°-54'-44
minimum elong	-5252 Apr 07 j 02:44	6° <del>✕</del> 03'31	10°38'50	min. Earth dist.	-5244 Oct 17 j 00:40	14° <del>✕</del> 44'09	44.66308 AU
retrograde	-5252 Jul 18 j 00:37	7° <del>✕</del> 34'45		direct	-5243 Jan 05 j 12:17	13° <del>✕</del> 43'54	
opposition	-5252 Oct 07 j 13:46	6° <del>✕</del> 34'18	-10°-59'-10	max. Earth dist.	-5243 Apr 15 j 07:02	15° <del>✕</del> 14'11	46.55919 AU
min. Earth dist.	-5252 Oct 08 j 14:44	6° <del>✕</del> 33'05	45.82169 AU				
direct	-5252 Dec 28 j 10:31	5° <del>✕</del> 33'19		conjunction	-5243 Apr 17 j 00:08	15° <del>✕</del> 16'37	-8°-23'-50
max. Earth dist.	-5251 Apr 07 j 03:59	7° <del>✕</del> 01'59	47.72304 AU	minimum elong	-5243 Apr 17 j 00:19	15° <del>✕</del> 16'38	8°23'57
				retrograde	-5243 Jul 27 j 17:09	16° <del>✕</del> 49'55	
conjunction	-5251 Apr 08 j 09:38	7° <del>✕</del> 03'43	-10°-24'-45	opposition	-5243 Oct 16 j 18:56	15° <del>✕</del> 48'37	-8°-37'-56
minimum elong	-5251 Apr 08 j 09:51	7° <del>✕</del> 03'44	10°24'55	min. Earth dist.	-5243 Oct 18 j 08:40	15° <del>✕</del> 46'44	44.49808 AU
retrograde	-5251 Jul 19 j 05:07	8° <del>✕</del> 35'09		direct	-5242 Jan 06 j 18:00	14° <del>✕</del> 46'23	
opposition	-5251 Oct 08 j 19:13	7° <del>✕</del> 34'39	-10°-44'-35	max. Earth dist.	-5242 Apr 16 j 13:54	16° <del>✕</del> 16'55	46.39403 AU
min. Earth dist.	-5251 Oct 09 j 22:05	7° <del>✕</del> 33'20	45.69155 AU				
direct	-5251 Dec 29 j 17:51	6° <del>✕</del> 33'34		conjunction	-5242 Apr 18 j 08:23	16° <del>✕</del> 19'27	-8°-7'-32
max. Earth dist.	-5250 Apr 08 j 11:12	8° <del>✕</del> 02'29	47.59296 AU	minimum elong	-5242 Apr 18 j 08:35	16° <del>✕</del> 19'27	8°07'38
				retrograde	-5242 Jul 29 j 01:44	17° <del>✕</del> 53'01	
conjunction	-5250 Apr 09 j 16:58	8° <del>✕</del> 04'14	-10°-10'-33	opposition	-5242 Oct 18 j 01:22	16° <del>✕</del> 51'34	-8°-20'-51
minimum elong	-5250 Apr 09 j 17:10	8° <del>✕</del> 04'14	10°10'42	min. Earth dist.	-5242 Oct 19 j 15:15	16° <del>✕</del> 49'40	44.32989 AU
retrograde	-5250 Jul 20 j 11:01	9° <del>✕</del> 35'53		direct	-5241 Jan 08 j 00:40	15° <del>✕</del> 49'09	
opposition	-5250 Oct 10 j 00:44	8° <del>✕</del> 35'19	-10°-29'-42	max. Earth dist.	-5241 Apr 17 j 20:39	17° <del>✕</del> 19'56	46.22569 AU
min. Earth dist.	-5250 Oct 11 j 04:15	8° <del>✕</del> 33'58	45.55817 AU				
direct	-5250 Dec 31 j 00:17	7° <del>✕</del> 34'08		conjunction	-5241 Apr 19 j 16:51	17° <del>✕</del> 22'34	-7°-50'-57
max. Earth dist.	-5249 Apr 09 j 16:10	9° <del>✕</del> 03'11	47.45937 AU	minimum elong	-5241 Apr 19 j 17:02	17° <del>✕</del> 22'35	7°51'02
				retrograde	-5241 Jul 30 j 07:37	18° <del>✕</del> 56'26	
conjunction	-5249 Apr 11 j 00:24	9° <del>✕</del> 05'05	-9°-56'-5	opposition	-5241 Oct 19 j 08:01	17° <del>✕</del> 54'50	-8°-3'-27
minimum elong	-5249 Apr 11 j 00:37	9° <del>✕</del> 05'05	9°56'14	min. Earth dist.	-5241 Oct 20 j 23:51	17° <del>✕</del> 52'51	44.15890 AU
retrograde	-5249 Jul 21 j 20:40	10° <del>✕</del> 36'57		direct	-5240 Jan 09 j 09:18	16° <del>✕</del> 52'16	
opposition	-5249 Oct 11 j 06:17	9° <del>✕</del> 36'20	-10°-14'-33	max. Earth dist.	-5240 Apr 18 j 05:16	18° <del>✕</del> 23'24	46.05488 AU
min. Earth dist.	-5249 Oct 12 j 11:09	9° <del>✕</del> 34'55	45.42108 AU				
direct	-5248 Jan 01 j 02:50	8° <del>✕</del> 35'03		conjunction	-5240 Apr 20 j 01:29	18° <del>✕</del> 26'03	-7°-34'-4
max. Earth dist.	-5248 Apr 09 j 22:57	10° <del>✕</del> 04'20	47.32153 AU	minimum elong	-5240 Apr 20 j 01:41	18° <del>✕</del> 26'04	7°34'10
				retrograde	-5240 Jul 30 j 13:23	20° <del>✕</del> 00'13	
conjunction	-5248 Apr 11 j 08:08	10° <del>✕</del> 06'17	-9°-41'-21	opposition	-5240 Oct 19 j 14:50	18° <del>✕</del> 58'31	-7°-45'-45
minimum elong	-5248 Apr 11 j 08:20	10° <del>✕</del> 06'17	9°41'29	min. Earth dist.	-5240 Oct 21 j 06:47	18° <del>✕</del> 56'30	43.98549 AU
retrograde	-5248 Jul 22 j 04:38	11° <del>✕</del> 38'24		direct	-5239 Jan 09 j 18:08	17° <del>✕</del> 55'47	
opposition	-5248 Oct 11 j 12:12	10° <del>✕</del> 37'42	-9°-59'-8	max. Earth dist.	-5239 Apr 19 j 11:39	19° <del>✕</del> 27'10	45.88170 AU
min. Earth dist.	-5248 Oct 12 j 19:00	10° <del>✕</del> 36'11	45.27940 AU				
direct	-5247 Jan 01 j 08:26	9° <del>✕</del> 36'17		conjunction	-5239 Apr 21 j 10:01	19° <del>✕</del> 29'57	-7°-16'-54
max. Earth dist.	-5247 Apr 11 j 04:59	11° <del>✕</del> 05'46	47.17900 AU	minimum elong	-5239 Apr 21 j 10:11	19° <del>✕</del> 29'58	7°17'00
				retrograde	-5239 Jul 31 j 23:33	21° <del>✕</del> 04'29	
conjunction	-5247 Apr 12 j 15:44	11° <del>✕</del> 07'49	-9°-26'-22	opposition	-5239 Oct 20 j 21:48	20° <del>✕</del> 02'39	-7°-27'-45
minimum elong	-5247 Apr 12 j 15:57	11° <del>✕</del> 07'50	9°26'30	min. Earth dist.	-5239 Oct 22 j 14:55	20° <del>✕</del> 00'35	43.80980 AU
retrograde	-5247 Jul 23 j 11:45	12° <del>✕</del> 40'09		direct	-5238 Jan 10 j 22:18	18° <del>✕</del> 59'45	
opposition	-5247 Oct 12 j 18:07	11° <del>✕</del> 39'22	-9°-43'-26	max. Earth dist.	-5238 Apr 20 j 20:23	20° <del>✕</del> 31'32	45.70598 AU
min. Earth dist.	-5247 Oct 14 j 01:33	11° <del>✕</del> 37'49	45.13276 AU				
direct	-5246 Jan 02 j 16:05	10° <del>✕</del> 37'49		conjunction	-5238 Apr 22 j 19:05	20° <del>✕</del> 34'21	-6°-59'-27
max. Earth dist.	-5246 Apr 12 j 10:32	12° <del>✕</del> 07'27	47.03123 AU	minimum elong	-5238 Apr 22 j 19:16	20° <del>✕</del> 34'22	6°59'33
				retrograde	-5238 Aug 02 j 08:51	22° <del>✕</del> 09'15	
conjunction	-5246 Apr 13 j 23:42	12° <del>✕</del> 09'39	-9°-11'-7	opposition	-5238 Oct 22 j 04:52	21° <del>✕</del> 07'18	-7°-9'-26
minimum elong	-5246 Apr 13 j 23:54	12° <del>✕</del> 09'40	9°11'14	min. Earth dist.	-5238 Oct 23 j 23:23	21° <del>✕</del> 05'09	43.63132 AU
retrograde	-5246 Jul 24 j 17:55	13° <del>✕</del> 42'13		direct	-5237 Jan 12 j 04:32	20° <del>✕</del> 04'15	



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 11

Attention, astronomical year style is used: The year -5237 in astronomical counting style is the year 5238 BCE in historical counting style.

max. Earth dist.	-5237 Apr 22 j 04:06	21° <del>♂</del> 36'23	45.52736 AU	max. Earth dist.	-5229 May 01 j 01:17	0° <del>♀</del> 33'44	43.95243 AU
conjunction	-5237 Apr 24 j 04:17	21° <del>♂</del> 39'18	-6°-41'-43	conjunction	-5229 May 03 j 13:13	0° <del>♀</del> 37'30	-4°-9'-37
minimum elong	-5237 Apr 24 j 04:27	21° <del>♂</del> 39'19	6°41'48	minimum elong	-5229 May 03 j 13:20	0° <del>♀</del> 37'30	4°09'38
retrograde	-5237 Aug 03 j 19:34	23° <del>♂</del> 14'34		retrograde	-5229 Aug 12 j 22:07	2° <del>♀</del> 16'03	
opposition	-5237 Oct 23 j 12:08	22° <del>♂</del> 12'31	-6°-50'-49	opposition	-5229 Nov 01 j 05:57	1° <del>♀</del> 12'31	-4°-11'-1
min. Earth dist.	-5237 Oct 25 j 07:10	22° <del>♂</del> 10'20	43.44968 AU	min. Earth dist.	-5229 Nov 03 j 11:17	1° <del>♀</del> 09'44	41.85156 AU
direct	-5236 Jan 13 j 11:47	21° <del>♂</del> 09'19		direct	-5228 Jan 22 j 10:04	0° <del>♀</del> 07'28	
max. Earth dist.	-5236 Apr 22 j 11:37	22° <del>♂</del> 41'47	45.34497 AU	max. Earth dist.	-5228 May 01 j 12:24	1° <del>♀</del> 43'08	43.74128 AU
conjunction	-5236 Apr 24 j 13:37	22° <del>♂</del> 44'50	-6°-23'-41	conjunction	-5228 May 04 j 00:11	1° <del>♀</del> 46'55	-3°-49'-18
minimum elong	-5236 Apr 24 j 13:47	22° <del>♂</del> 44'50	6°23'46	minimum elong	-5228 May 04 j 00:18	1° <del>♀</del> 46'55	3°49'20
retrograde	-5236 Aug 04 j 04:42	24° <del>♂</del> 20'29		retrograde	-5228 Aug 13 j 07:14	3° <del>♀</del> 25'58	
opposition	-5236 Oct 23 j 19:45	23° <del>♂</del> 18'18	-6°-31'-54	opposition	-5228 Nov 01 j 15:13	2° <del>♀</del> 22'13	-3°-49'-38
min. Earth dist.	-5236 Oct 25 j 17:04	23° <del>♂</del> 16'00	43.26408 AU	min. Earth dist.	-5228 Nov 03 j 21:05	2° <del>♀</del> 19'24	41.63872 AU
direct	-5235 Jan 13 j 20:29	22° <del>♂</del> 14'56		direct	-5227 Jan 22 j 19:49	1° <del>♀</del> 16'55	
max. Earth dist.	-5235 Apr 23 j 20:36	23° <del>♂</del> 47'49	45.15847 AU	max. Earth dist.	-5227 May 02 j 22:05	2° <del>♀</del> 53'02	43.52857 AU
conjunction	-5235 Apr 25 j 23:18	23° <del>♂</del> 50'55	-6°-5'-23	conjunction	-5227 May 05 j 11:22	2° <del>♀</del> 56'55	-3°-28'-41
minimum elong	-5235 Apr 25 j 23:27	23° <del>♂</del> 50'55	6°05'27	minimum elong	-5227 May 05 j 11:28	2° <del>♀</del> 56'56	3°28'43
retrograde	-5235 Aug 05 j 11:23	25° <del>♂</del> 26'58		retrograde	-5227 Aug 14 j 20:28	4° <del>♀</del> 36'30	
opposition	-5235 Oct 25 j 03:24	24° <del>♂</del> 24'38	-6°-12'-41	opposition	-5227 Nov 03 j 00:32	3° <del>♀</del> 32'32	-3°-27'-56
min. Earth dist.	-5235 Oct 27 j 01:13	24° <del>♂</del> 22'18	43.07407 AU	min. Earth dist.	-5227 Nov 05 j 06:50	3° <del>♀</del> 29'41	41.42445 AU
direct	-5234 Jan 15 j 06:35	23° <del>♂</del> 21'04		direct	-5226 Jan 24 j 02:44	2° <del>♀</del> 26'59	
max. Earth dist.	-5234 Apr 25 j 03:43	24° <del>♂</del> 54'14	44.96738 AU	max. Earth dist.	-5226 May 04 j 08:46	4° <del>♀</del> 03'39	43.31407 AU
conjunction	-5234 Apr 27 j 09:06	24° <del>♂</del> 57'31	-5°-46'-48	conjunction	-5226 May 06 j 22:59	4° <del>♀</del> 07'37	-3°-7'-47
minimum elong	-5234 Apr 27 j 09:16	24° <del>♂</del> 57'32	5°46'52	minimum elong	-5226 May 06 j 23:04	4° <del>♀</del> 07'38	3°07'48
retrograde	-5234 Aug 06 j 20:36	26° <del>♂</del> 33'59		retrograde	-5226 Aug 16 j 09:38	5° <del>♀</del> 47'44	
opposition	-5234 Oct 26 j 11:23	25° <del>♂</del> 31'29	-5°-53'-10	opposition	-5226 Nov 04 j 10:21	4° <del>♀</del> 43'35	-3°-5'-55
min. Earth dist.	-5234 Oct 28 j 11:05	25° <del>♂</del> 29'03	42.87954 AU	min. Earth dist.	-5226 Nov 06 j 18:23	4° <del>♀</del> 40'38	41.20826 AU
direct	-5233 Jan 16 j 13:47	24° <del>♂</del> 27'42		direct	-5225 Jan 25 j 11:29	3° <del>♀</del> 37'48	
max. Earth dist.	-5233 Apr 26 j 13:14	26° <del>♂</del> 01'17	44.77165 AU	max. Earth dist.	-5225 May 05 j 20:06	5° <del>♀</del> 15'03	43.09753 AU
conjunction	-5233 Apr 28 j 19:18	26° <del>♂</del> 04'37	-5°-27'-56	conjunction	-5225 May 08 j 10:51	5° <del>♀</del> 19'05	-2°-46'-34
minimum elong	-5233 Apr 28 j 19:26	26° <del>♂</del> 04'38	5°27'59	minimum elong	-5225 May 08 j 10:56	5° <del>♀</del> 19'05	2°46'35
retrograde	-5233 Aug 08 j 06:36	27° <del>♂</del> 41'29		retrograde	-5225 Aug 17 j 21:02	6° <del>♀</del> 59'45	
opposition	-5233 Oct 27 j 19:31	26° <del>♂</del> 38'48	-5°-33'-22	opposition	-5225 Nov 05 j 20:17	5° <del>♀</del> 55'25	-2°-43'-34
min. Earth dist.	-5233 Oct 29 j 20:41	26° <del>♂</del> 36'17	42.68050 AU	min. Earth dist.	-5225 Nov 08 j 04:21	5° <del>♀</del> 52'27	40.98976 AU
direct	-5232 Jan 17 j 20:50	25° <del>♂</del> 34'47		direct	-5224 Jan 26 j 22:52	4° <del>♀</del> 49'24	
max. Earth dist.	-5232 Apr 26 j 21:30	27° <del>♂</del> 08'42	44.57181 AU	max. Earth dist.	-5224 May 06 j 06:08	6° <del>♀</del> 27'10	42.87819 AU
conjunction	-5232 Apr 29 j 05:28	27° <del>♂</del> 12'10	-5°-8'-47	conjunction	-5224 May 08 j 23:02	6° <del>♀</del> 31'21	-2°-25'-5
minimum elong	-5232 Apr 29 j 05:36	27° <del>♂</del> 12'11	5°08'51	minimum elong	-5224 May 08 j 23:06	6° <del>♀</del> 31'21	2°25'05
retrograde	-5232 Aug 08 j 18:52	28° <del>♂</del> 49'26		retrograde	-5224 Aug 18 j 08:15	8° <del>♀</del> 12'37	
opposition	-5232 Oct 28 j 03:47	27° <del>♂</del> 46'33	-5°-13'-15	opposition	-5224 Nov 06 j 06:42	7° <del>♀</del> 08'05	-2°-20'-55
min. Earth dist.	-5232 Oct 30 j 05:30	27° <del>♂</del> 44'00	42.47769 AU	min. Earth dist.	-5224 Nov 08 j 16:45	7° <del>♀</del> 05'00	40.76838 AU
direct	-5231 Jan 18 j 02:51	26° <del>♂</del> 42'17		direct	-5223 Jan 27 j 09:22	6° <del>♀</del> 01'49	
max. Earth dist.	-5231 Apr 28 j 06:22	28° <del>♂</del> 16'35	44.36821 AU	max. Earth dist.	-5223 May 07 j 18:27	7° <del>♀</del> 40'13	42.65558 AU
conjunction	-5231 Apr 30 j 15:46	28° <del>♂</del> 20'09	-4°-49'-21	conjunction	-5223 May 10 j 11:33	7° <del>♀</del> 44'27	-2°-3'-18
minimum elong	-5231 Apr 30 j 15:54	28° <del>♂</del> 20'10	4°49'24	minimum elong	-5223 May 10 j 11:37	7° <del>♀</del> 44'28	2°03'17
retrograde	-5231 Aug 10 j 04:18	29° <del>♂</del> 57'51		retrograde	-5223 Aug 19 j 18:40	9° <del>♀</del> 26'20	
opposition	-5231 Oct 29 j 12:22	28° <del>♂</del> 54'44	-4°-52'-49	opposition	-5223 Nov 07 j 17:26	8° <del>♀</del> 21'35	-1°-57'-57
min. Earth dist.	-5231 Oct 31 j 16:06	28° <del>♂</del> 52'04	42.27149 AU	min. Earth dist.	-5223 Nov 10 j 04:21	8° <del>♀</del> 18'27	40.54339 AU
direct	-5230 Jan 19 j 12:56	27° <del>♂</del> 50'13		direct	-5222 Jan 28 j 20:51	7° <del>♀</del> 15'04	
max. Earth dist.	-5230 Apr 29 j 16:39	29° <del>♂</del> 24'59	44.16159 AU	max. Earth dist.	-5222 May 09 j 04:56	8° <del>♀</del> 53'59	42.42925 AU
conjunction	-5230 May 02 j 02:25	29° <del>♂</del> 28'36	-4°-29'-38	conjunction	-5222 May 12 j 00:26	8° <del>♀</del> 58'24	-1°-41'-13
minimum elong	-5230 May 02 j 02:32	29° <del>♂</del> 28'36	4°29'40	minimum elong	-5222 May 12 j 00:29	8° <del>♀</del> 58'24	1°41'12
retrograde	-5230 May 23 j 08:49	0° <del>♀</del>		retrograde	-5222 Aug 21 j 08:49	10° <del>♀</del> 40'54	
opposition	-5230 Aug 11 j 12:15	1° <del>♀</del> 06'42		opposition	-5222 Nov 09 j 04:21	9° <del>♀</del> 35'55	-1°-34'-41
min. Earth dist.	-5230 Oct 30 j 20:56	0° <del>♀</del> 03'23	-4°-32'-4	min. Earth dist.	-5222 Nov 11 j 16:24	9° <del>♀</del> 32'42	40.31476 AU
direct	-5230 Nov 02 j 00:48	0° <del>♀</del> 00'41	42.06257 AU	direct	-5221 Jan 30 j 05:07	8° <del>♀</del> 29'06	
max. Earth dist.	-5230 Nov 02 j 14:01	30° <del>♂</del>		max. Earth dist.	-5221 May 10 j 17:17	10° <del>♀</del> 08'39	42.19903 AU
direct	-5229 Jan 21 j 01:04	28° <del>♂</del> 58'35		conjunction	-5221 May 13 j 13:49	10° <del>♀</del> 13'09	-1°-18'-52
	-5229 Apr 08 j 01:13	0° <del>♀</del>					



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 12

Attention, astronomical year style is used: The year -5221 in astronomical counting style is the year 5222 BCE in historical counting style.

minimum elong	-5221 May 13 j 13:52	10° $\Upsilon$ 13'09	1°18'52	conjunction	-5213 May 24 j 11:26	20° $\Upsilon$ 42'00	1°49'51
retrograde	-5221 Aug 22 j 22:27	11° $\Upsilon$ 56'17		minimum elong	-5213 May 24 j 11:22	20° $\Upsilon$ 42'00	1°49'55
opposition	-5221 Nov 10 j 15:49	10° $\Upsilon$ 51'03	-1°-11'-5	retrograde	-5213 Sep 02 j 21:03	22° $\Upsilon$ 30'56	
min. Earth dist.	-5221 Nov 13 j 05:41	10° $\Upsilon$ 47'44	40.08241 AU	opposition	-5213 Nov 20 j 23:07	21° $\Upsilon$ 23'28	2°08'24
direct	-5220 Jan 31 j 15:46	9° $\Upsilon$ 43'57		min. Earth dist.	-5213 Nov 23 j 18:39	21° $\Upsilon$ 19'42	38.15153 AU
max. Earth dist.	-5220 May 11 j 05:42	11° $\Upsilon$ 24'07	41.96538 AU	direct	-5212 Feb 11 j 00:13	20° $\Upsilon$ 13'43	
				max. Earth dist.	-5212 May 21 j 22:34	21° $\Upsilon$ 59'48	40.02719 AU
conjunction	-5220 May 14 j 03:12	11° $\Upsilon$ 28'43	0°-56'-14				
minimum elong	-5220 May 14 j 03:14	11° $\Upsilon$ 28'43	0°56'13	conjunction	-5212 May 25 j 03:48	22° $\Upsilon$ 05'12	2°14'36
retrograde	-5220 Aug 23 j 13:11	13° $\Upsilon$ 12'29		minimum elong	-5212 May 25 j 03:43	22° $\Upsilon$ 05'11	2°14'42
opposition	-5220 Nov 11 j 03:24	12° $\Upsilon$ 07'00	0°-47'-12	retrograde	-5212 Sep 03 j 14:01	23° $\Upsilon$ 54'59	
min. Earth dist.	-5220 Nov 13 j 17:29	12° $\Upsilon$ 03'39	39.84690 AU	opposition	-5212 Nov 21 j 13:59	22° $\Upsilon$ 47'14	2°34'36
direct	-5219 Feb 01 j 04:44	10° $\Upsilon$ 59'34		min. Earth dist.	-5212 Nov 24 j 11:06	22° $\Upsilon$ 43'21	37.90473 AU
max. Earth dist.	-5219 May 12 j 17:34	12° $\Upsilon$ 40'20	41.72859 AU	direct	-5211 Feb 11 j 14:23	21° $\Upsilon$ 37'09	
				max. Earth dist.	-5211 May 23 j 15:38	23° $\Upsilon$ 24'08	39.77860 AU
conjunction	-5219 May 15 j 17:02	12° $\Upsilon$ 45'05	0°-33'-19				
minimum elong	-5219 May 15 j 17:03	12° $\Upsilon$ 45'05	0°33'19	conjunction	-5211 May 26 j 20:55	23° $\Upsilon$ 29'35	2°39'35
retrograde	-5219 Aug 25 j 03:19	14° $\Upsilon$ 29'31		minimum elong	-5211 May 26 j 20:50	23° $\Upsilon$ 29'35	2°39'40
opposition	-5219 Nov 12 j 15:19	13° $\Upsilon$ 23'45	0°-23'00	retrograde	-5211 Sep 05 j 04:24	25° $\Upsilon$ 20'15	
min. Earth dist.	-5219 Nov 15 j 07:24	13° $\Upsilon$ 20'16	39.60874 AU	opposition	-5211 Nov 23 j 05:14	24° $\Upsilon$ 12'12	3°01'05
direct	-5218 Feb 02 j 17:27	12° $\Upsilon$ 15'59		min. Earth dist.	-5211 Nov 26 j 03:10	24° $\Upsilon$ 08'15	37.65566 AU
max. Earth dist.	-5218 May 14 j 07:47	13° $\Upsilon$ 57'29	41.48938 AU	direct	-5210 Feb 13 j 06:13	23° $\Upsilon$ 01'45	
				max. Earth dist.	-5210 May 25 j 07:18	24° $\Upsilon$ 49'33	39.52763 AU
conjunction	-5218 May 17 j 07:17	14° $\Upsilon$ 02'16	0°-10'-9				
minimum elong	-5218 May 17 j 07:17	14° $\Upsilon$ 02'16	0°10'07	conjunction	-5210 May 28 j 14:26	24° $\Upsilon$ 55'10	3°04'48
behind sun begin	-5218 May 17 j 02:06	14° $\Upsilon$ 01'57		minimum elong	-5210 May 28 j 14:19	24° $\Upsilon$ 55'10	3°04'54
behind sun end	-5218 May 17 j 12:28	14° $\Upsilon$ 02'36		retrograde	-5210 Sep 06 j 22:44	26° $\Upsilon$ 46'44	
retrograde	-5218 Aug 26 j 14:35	15° $\Upsilon$ 47'22		opposition	-5210 Nov 24 j 21:04	25° $\Upsilon$ 38'21	3°27'49
asc. node	-5218 Oct 22 j 23:28	15° $\Upsilon$ 09'23		min. Earth dist.	-5210 Nov 27 j 19:41	25° $\Upsilon$ 34'20	37.40427 AU
opposition	-5218 Nov 14 j 03:37	14° $\Upsilon$ 41'19	0°01'30	direct	-5209 Feb 14 j 19:44	24° $\Upsilon$ 27'31	
min. Earth dist.	-5218 Nov 16 j 19:50	14° $\Upsilon$ 37'49	39.36842 AU	max. Earth dist.	-5209 May 27 j 00:31	26° $\Upsilon$ 16'12	39.27401 AU
direct	-5217 Feb 04 j 07:43	13° $\Upsilon$ 33'14					
max. Earth dist.	-5217 May 15 j 20:18	15° $\Upsilon$ 15'20	41.24827 AU	conjunction	-5209 May 30 j 08:31	26° $\Upsilon$ 21'56	3°30'14
				minimum elong	-5209 May 30 j 08:24	26° $\Upsilon$ 21'56	3°30'20
conjunction	-5217 May 18 j 21:39	15° $\Upsilon$ 20'17	0°13'23	retrograde	-5209 Sep 08 j 16:58	28° $\Upsilon$ 14'24	
minimum elong	-5217 May 18 j 21:39	15° $\Upsilon$ 20'17	0°13'26	opposition	-5209 Nov 26 j 13:30	27° $\Upsilon$ 05'40	3°54'47
behind sun begin	-5217 May 18 j 18:07	15° $\Upsilon$ 20'04		min. Earth dist.	-5209 Nov 29 j 13:52	27° $\Upsilon$ 01'32	37.15046 AU
behind sun end	-5217 May 19 j 01:11	15° $\Upsilon$ 20'31		direct	-5208 Feb 16 j 09:50	25° $\Upsilon$ 54'26	
retrograde	-5217 Aug 28 j 04:14	17° $\Upsilon$ 06'06		max. Earth dist.	-5208 May 27 j 18:20	27° $\Upsilon$ 44'03	39.01827 AU
opposition	-5217 Nov 15 j 16:16	15° $\Upsilon$ 59'45	0°26'18				
min. Earth dist.	-5217 Nov 18 j 09:29	15° $\Upsilon$ 56'11	39.12675 AU	conjunction	-5208 May 31 j 02:58	27° $\Upsilon$ 49'52	3°55'52
direct	-5216 Feb 05 j 19:05	14° $\Upsilon$ 51'20		minimum elong	-5208 May 31 j 02:50	27° $\Upsilon$ 49'51	3°55'58
max. Earth dist.	-5216 May 16 j 11:13	16° $\Upsilon$ 34'13	41.00584 AU	retrograde	-5208 Sep 09 j 12:35	29° $\Upsilon$ 43'15	
				opposition	-5208 Nov 27 j 06:14	28° $\Upsilon$ 34'09	4°21'59
conjunction	-5216 May 19 j 12:33	16° $\Upsilon$ 39'12	0°37'06	min. Earth dist.	-5208 Nov 30 j 06:27	28° $\Upsilon$ 30'01	36.89483 AU
minimum elong	-5216 May 19 j 12:32	16° $\Upsilon$ 39'12	0°37'10	direct	-5207 Feb 17 j 03:25	27° $\Upsilon$ 22'30	
retrograde	-5216 Aug 28 j 18:35	18° $\Upsilon$ 25'45		max. Earth dist.	-5207 May 29 j 11:31	29° $\Upsilon$ 12'59	38.76069 AU
opposition	-5216 Nov 16 j 05:26	17° $\Upsilon$ 19'07	0°51'24				
min. Earth dist.	-5216 Nov 18 j 23:33	17° $\Upsilon$ 15'28	38.88407 AU	conjunction	-5207 Jun 01 j 21:52	29° $\Upsilon$ 18'58	4°21'41
direct	-5215 Feb 06 j 06:12	16° $\Upsilon$ 10'21		minimum elong	-5207 Jun 01 j 21:43	29° $\Upsilon$ 18'58	4°21'49
max. Earth dist.	-5215 May 18 j 01:19	17° $\Upsilon$ 53'59	40.76270 AU		-5207 Jun 25 j 20:26	0° $\mathcal{B}$	
				retrograde	-5207 Sep 11 j 08:41	1° $\mathcal{B}$ 13'18	
conjunction	-5215 May 21 j 03:35	17° $\Upsilon$ 59'04	1°01'05	opposition	-5207 Nov 28 j 23:36	0° $\mathcal{B}$ 03'49	4°49'24
minimum elong	-5215 May 21 j 03:33	17° $\Upsilon$ 59'03	1°01'09		-5207 Dec 01 j 17:47	30° $\mathcal{R}\Upsilon$	
retrograde	-5215 Aug 30 j 11:40	19° $\Upsilon$ 46'23		min. Earth dist.	-5207 Dec 02 j 01:31	29° $\Upsilon$ 59'33	36.63784 AU
opposition	-5215 Nov 17 j 18:51	18° $\Upsilon$ 39'28	1°16'47	direct	-5206 Feb 18 j 21:06	28° $\Upsilon$ 51'44	
min. Earth dist.	-5215 Nov 20 j 12:49	18° $\Upsilon$ 35'49	38.64080 AU		-5206 May 05 j 20:27	0° $\mathcal{B}$	
direct	-5214 Feb 07 j 17:20	17° $\Upsilon$ 30'22		max. Earth dist.	-5206 May 31 j 07:30	0° $\mathcal{B}$ 43'16	38.50197 AU
max. Earth dist.	-5214 May 19 j 15:53	19° $\Upsilon$ 14'47	40.51867 AU				
				conjunction	-5206 Jun 03 j 17:22	0° $\mathcal{B}$ 49'17	4°47'41
conjunction	-5214 May 22 j 19:17	19° $\Upsilon$ 19'58	1°25'21	minimum elong	-5206 Jun 03 j 17:12	0° $\mathcal{B}$ 49'16	4°47'49
minimum elong	-5214 May 22 j 19:15	19° $\Upsilon$ 19'58	1°25'26	retrograde	-5206 Sep 13 j 03:01	2° $\mathcal{B}$ 44'34	
retrograde	-5214 Sep 01 j 04:28	21° $\Upsilon$ 08'05		opposition	-5206 Nov 30 j 17:23	1° $\mathcal{B}$ 34'42	5°17'00
opposition	-5214 Nov 19 j 08:45	20° $\Upsilon$ 00'53	1°42'27	min. Earth dist.	-5206 Dec 03 j 19:13	1° $\mathcal{B}$ 30'25	36.38013 AU
min. Earth dist.	-5214 Nov 22 j 04:23	19° $\Upsilon$ 57'08	38.39673 AU	direct	-5205 Feb 20 j 16:56	0° $\mathcal{B}$ 22'11	
direct	-5213 Feb 09 j 07:38	18° $\Upsilon$ 51'29		max. Earth dist.	-5205 Jun 02 j 01:52	2° $\mathcal{B}$ 14'38	38.24284 AU
max. Earth dist.	-5213 May 21 j 08:10	20° $\Upsilon$ 36'47	40.27371 AU				



Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 13

Attention, astronomical year style is used: The year -5205 in astronomical counting style is the year 5206 BCE in historical counting style.

conjunction	-5205 Jun 05 j 13:15	2°820'49	5°13'50	conjunction	-5197 Jun 19 j 01:54	15°828'11	8°45'25
minimum elong	-5205 Jun 05 j 13:04	2°820'48	5°13'58	minimum elong	-5197 Jun 19 j 01:35	15°828'09	8°45'38
retrograde	-5205 Sep 14 j 23:11	4°817'07		retrograde	-5197 Sep 28 j 15:42	17°833'48	
opposition	-5205 Dec 02 j 11:49	3°806'52	5°44'46	opposition	-5197 Dec 15 j 14:15	16°820'34	9°29'47
min. Earth dist.	-5205 Dec 05 j 14:20	3°802'30	36.12266 AU	min. Earth dist.	-5197 Dec 18 j 19:33	16°815'49	34.09937 AU
direct	-5204 Feb 22 j 09:57	1°853'54		direct	-5196 Mar 06 j 04:14	15°804'12	
max. Earth dist.	-5204 Jun 02 j 22:44	3°847'28	37.98401 AU	max. Earth dist.	-5196 Jun 16 j 14:04	17°807'28	35.94706 AU
conjunction	-5204 Jun 06 j 09:36	3°853'40	5°40'06	conjunction	-5196 Jun 20 j 03:15	17°814'21	9°11'47
minimum elong	-5204 Jun 06 j 09:24	3°853'39	5°40'14	minimum elong	-5196 Jun 20 j 02:55	17°814'19	9°11'58
retrograde	-5204 Sep 15 j 17:49	5°851'00		retrograde	-5196 Sep 29 j 18:35	19°821'14	
opposition	-5204 Dec 03 j 06:54	4°840'23	6°12'40	opposition	-5196 Dec 16 j 14:42	18°807'35	9°57'51
min. Earth dist.	-5204 Dec 06 j 09:50	4°835'58	35.86590 AU	min. Earth dist.	-5196 Dec 19 j 19:24	18°802'50	33.84947 AU
direct	-5203 Feb 23 j 04:02	3°826'59		direct	-5195 Mar 08 j 02:12	16°850'43	
max. Earth dist.	-5203 Jun 04 j 19:06	5°821'38	37.72626 AU	max. Earth dist.	-5195 Jun 18 j 16:01	18°855'17	35.69494 AU
conjunction	-5203 Jun 08 j 06:30	5°827'55	6°06'28	conjunction	-5195 Jun 22 j 05:35	19°802'15	9°38'01
minimum elong	-5203 Jun 08 j 06:17	5°827'54	6°06'37	minimum elong	-5195 Jun 22 j 05:14	19°802'14	9°38'14
retrograde	-5203 Sep 17 j 16:23	7°826'21		retrograde	-5195 Oct 01 j 21:32	21°810'25	
opposition	-5203 Dec 05 j 02:17	6°815'20	6°40'42	opposition	-5195 Dec 18 j 15:54	19°856'19	10°25'46
min. Earth dist.	-5203 Dec 08 j 04:45	6°810'56	35.61054 AU	min. Earth dist.	-5195 Dec 21 j 21:48	19°851'28	33.60077 AU
direct	-5202 Feb 24 j 21:04	5°801'31		direct	-5194 Mar 10 j 02:14	18°838'58	
max. Earth dist.	-5202 Jun 06 j 16:26	6°857'19	37.46970 AU	max. Earth dist.	-5194 Jun 20 j 19:47	20°844'55	35.44439 AU
conjunction	-5202 Jun 10 j 04:11	7°803'41	6°32'55	conjunction	-5194 Jun 24 j 08:32	20°851'54	10°04'04
minimum elong	-5202 Jun 10 j 03:57	7°803'40	6°33'04	minimum elong	-5194 Jun 24 j 08:10	20°851'52	10°04'16
retrograde	-5202 Sep 19 j 15:03	9°803'15		retrograde	-5194 Oct 04 j 02:36	23°801'20	
opposition	-5202 Dec 06 j 22:36	7°851'53	7°08'48	opposition	-5194 Dec 20 j 17:53	21°846'47	10°53'29
min. Earth dist.	-5202 Dec 10 j 02:14	7°847'23	35.35657 AU	min. Earth dist.	-5194 Dec 23 j 22:45	21°841'58	33.35402 AU
direct	-5201 Feb 26 j 14:51	6°837'39		direct	-5193 Mar 12 j 05:10	20°828'56	
max. Earth dist.	-5201 Jun 08 j 15:07	8°834'42	37.21454 AU	max. Earth dist.	-5193 Jun 22 j 22:36	22°836'11	35.19601 AU
conjunction	-5201 Jun 12 j 02:18	8°841'05	6°59'25	conjunction	-5193 Jun 26 j 11:59	22°843'16	10°29'52
minimum elong	-5201 Jun 12 j 02:04	8°841'04	6°59'35	minimum elong	-5193 Jun 26 j 11:37	22°843'14	10°30'06
retrograde	-5201 Sep 21 j 15:01	10°841'48		retrograde	-5193 Oct 06 j 07:56	24°854'02	
opposition	-5201 Dec 08 j 19:26	9°830'06	7°36'58	opposition	-5193 Dec 22 j 20:46	23°839'00	11°20'57
min. Earth dist.	-5201 Dec 11 j 22:21	9°825'36	35.10391 AU	min. Earth dist.	-5193 Dec 26 j 02:11	23°834'08	33.11013 AU
direct	-5200 Feb 28 j 13:03	8°815'28		direct	-5192 Mar 13 j 06:49	22°820'39	
max. Earth dist.	-5200 Jun 09 j 12:39	10°813'40	36.96030 AU	max. Earth dist.	-5192 Jun 24 j 04:35	24°829'24	34.95083 AU
conjunction	-5200 Jun 13 j 01:07	10°820'12	7°25'56	conjunction	-5192 Jun 27 j 16:16	24°836'26	10°55'23
minimum elong	-5200 Jun 13 j 00:51	10°820'11	7°26'06	minimum elong	-5192 Jun 27 j 15:53	24°836'24	10°55'36
retrograde	-5200 Sep 22 j 16:32	12°822'07		retrograde	-5192 Oct 07 j 12:09	26°848'31	
opposition	-5200 Dec 09 j 16:59	11°810'03	8°05'11	opposition	-5192 Dec 24 j 00:20	25°833'03	11°48'05
min. Earth dist.	-5200 Dec 12 j 21:04	11°805'28	34.85226 AU	min. Earth dist.	-5192 Dec 27 j 04:41	25°828'12	32.86983 AU
direct	-5199 Mar 01 j 10:03	9°855'00		direct	-5191 Mar 15 j 11:01	24°814'12	
max. Earth dist.	-5199 Jun 11 j 13:00	11°854'32	36.70668 AU	max. Earth dist.	-5191 Jun 26 j 09:06	26°824'19	34.70962 AU
conjunction	-5199 Jun 15 j 00:40	12°801'05	7°52'28	conjunction	-5191 Jun 29 j 21:09	26°831'26	11°20'32
minimum elong	-5199 Jun 15 j 00:23	12°801'04	7°52'39	minimum elong	-5191 Jun 29 j 20:45	26°831'24	11°20'46
retrograde	-5199 Sep 24 j 15:30	14°804'13		retrograde	-5191 Oct 09 j 19:02	28°844'53	
opposition	-5199 Dec 11 j 15:19	12°851'47	8°33'24	opposition	-5191 Dec 26 j 04:46	27°828'59	12°14'49
min. Earth dist.	-5199 Dec 14 j 19:21	12°847'10	34.60097 AU	min. Earth dist.	-5191 Dec 29 j 08:36	27°824'08	32.63393 AU
direct	-5198 Mar 03 j 09:00	11°836'19		direct	-5190 Mar 17 j 14:23	26°809'40	
max. Earth dist.	-5198 Jun 13 j 11:49	13°837'01	36.45324 AU	max. Earth dist.	-5190 Jun 28 j 16:41	28°821'20	34.47284 AU
conjunction	-5198 Jun 17 j 00:50	13°843'45	8°18'58	conjunction	-5190 Jul 02 j 03:00	28°828'23	11°45'15
minimum elong	-5198 Jun 17 j 00:32	13°843'44	8°19'09	minimum elong	-5190 Jul 02 j 02:36	28°828'21	11°45'29
	-5198 Jul 30 j 00:50	15°8			-5190 Aug 19 j 19:43	0°II	
retrograde	-5198 Sep 26 j 15:58	15°848'07		retrograde	-5190 Oct 12 j 00:44	0°II43'14	
	-5198 Nov 26 j 09:29	15°R8			-5190 Dec 06 j 05:49	30°R8	
opposition	-5198 Dec 13 j 14:18	14°835'18	9°01'37	opposition	-5190 Dec 28 j 10:10	29°826'54	12°41'06
min. Earth dist.	-5198 Dec 16 j 18:51	14°830'37	34.35004 AU	min. Earth dist.	-5190 Dec 31 j 13:37	29°822'03	32.40263 AU
direct	-5197 Mar 05 j 06:18	13°819'23		direct	-5189 Mar 19 j 18:18	28°807'09	
	-5197 Jun 04 j 06:07	15°8			-5189 Jun 21 j 02:53	0°II	
max. Earth dist.	-5197 Jun 15 j 13:11	15°821'25	36.19990 AU	max. Earth dist.	-5189 Jun 30 j 23:37	0°II20'18	34.24094 AU



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 14

Attention, astronomical year style is used: The year -5189 in astronomical counting style is the year 5190 BCE in historical counting style.

conjunction	-5189 Jul 04 j 09:28	0°II27'23	12°09'30	opposition	-5180 Jan 17 j 03:44	18°II45'07	16°05'52
minimum elong	-5189 Jul 04 j 09:04	0°II27'21	12°09'45	min. Earth dist.	-5180 Jan 19 j 23:33	18°II40'32	30.52450 AU
retrograde	-5189 Oct 14 j 08:32	2°II43'39		direct	-5180 Apr 06 j 22:48	17°II21'39	
opposition	-5189 Dec 30 j 16:22	1°II26'56	13°06'51	max. Earth dist.	-5180 Jul 20 j 09:02	19°II48'35	32.35712 AU
min. Earth dist.	-5188 Jan 02 j 18:25	1°II22'09	32.17628 AU				
direct	-5188 Mar 20 j 22:27	0°II06'45		conjunction	-5180 Jul 23 j 08:13	19°II55'18	15°15'39
max. Earth dist.	-5188 Jul 02 j 07:55	2°II21'28	34.01365 AU	minimum elong	-5180 Jul 23 j 07:51	19°II55'16	15°15'56
				retrograde	-5180 Nov 02 j 22:03	22°II24'17	
conjunction	-5188 Jul 05 j 16:45	2°II28'32	12°33'11	opposition	-5179 Jan 18 j 18:07	21°II04'01	16°23'38
minimum elong	-5188 Jul 05 j 16:20	2°II28'30	12°33'26	min. Earth dist.	-5179 Jan 21 j 11:22	20°II59'35	30.34287 AU
retrograde	-5188 Oct 15 j 16:21	4°II46'15		direct	-5179 Apr 09 j 12:05	19°II40'10	
opposition	-5188 Dec 31 j 23:35	3°II29'09	13°32'00	max. Earth dist.	-5179 Jul 23 j 01:28	22°II08'35	32.17661 AU
min. Earth dist.	-5187 Jan 04 j 01:52	3°II24'19	31.95444 AU				
direct	-5187 Mar 23 j 02:44	2°II08'34		conjunction	-5179 Jul 25 j 22:27	22°II15'09	15°31'23
max. Earth dist.	-5187 Jul 04 j 17:14	4°II24'51	33.79084 AU	minimum elong	-5179 Jul 25 j 22:07	22°II15'07	15°31'40
				retrograde	-5179 Nov 05 j 12:20	24°II45'26	
conjunction	-5187 Jul 08 j 00:54	4°II31'53	12°56'17	opposition	-5178 Jan 21 j 09:25	23°II24'48	16°40'02
minimum elong	-5187 Jul 08 j 00:29	4°II31'51	12°56'33	min. Earth dist.	-5178 Jan 24 j 01:44	23°II20'24	30.16911 AU
retrograde	-5187 Oct 18 j 02:34	6°II51'03		direct	-5178 Apr 12 j 00:32	22°II00'35	
opposition	-5186 Jan 03 j 07:29	5°II33'35	13°56'31	max. Earth dist.	-5178 Jul 25 j 18:52	24°II30'29	32.00473 AU
min. Earth dist.	-5186 Jan 06 j 08:11	5°II28'49	31.73687 AU				
direct	-5186 Mar 25 j 09:17	4°II12'34		conjunction	-5178 Jul 28 j 13:18	24°II36'52	15°45'47
max. Earth dist.	-5186 Jul 07 j 02:30	6°II30'22	33.57205 AU	minimum elong	-5178 Jul 28 j 12:58	24°II36'50	15°46'03
				retrograde	-5178 Nov 08 j 05:18	27°II08'26	
conjunction	-5186 Jul 10 j 09:59	6°II37'27	13°18'44	opposition	-5177 Jan 24 j 01:38	25°II47'27	16°54'59
minimum elong	-5186 Jul 10 j 09:34	6°II37'25	13°18'59	min. Earth dist.	-5177 Jan 26 j 14:40	25°II43'16	30.00399 AU
retrograde	-5186 Oct 20 j 13:44	8°II58'05		direct	-5177 Apr 14 j 14:50	24°II22'55	
opposition	-5185 Jan 05 j 16:39	7°II40'13	14°20'18	max. Earth dist.	-5177 Jul 28 j 12:19	26°II54'13	31.84178 AU
min. Earth dist.	-5185 Jan 08 j 17:42	7°II35'25	31.52336 AU				
direct	-5185 Mar 27 j 15:54	6°II18'49		conjunction	-5177 Jul 31 j 04:44	27°II00'27	15°58'47
max. Earth dist.	-5185 Jul 09 j 14:13	8°II38'14	33.35737 AU	minimum elong	-5177 Jul 31 j 04:26	27°II00'26	15°59'04
				retrograde	-5177 Nov 10 j 22:08	29°II33'16	
conjunction	-5185 Jul 12 j 19:46	8°II45'14	13°40'28	opposition	-5176 Jan 26 j 18:46	28°II11'59	17°08'23
minimum elong	-5185 Jul 12 j 19:21	8°II45'11	13°40'44	min. Earth dist.	-5176 Jan 29 j 06:35	28°II07'52	29.84781 AU
retrograde	-5185 Oct 23 j 02:00	11°II07'18		direct	-5176 Apr 16 j 05:25	26°II47'10	
opposition	-5184 Jan 08 j 02:42	9°II49'03	14°43'20	max. Earth dist.	-5176 Jul 30 j 07:54	29°II19'58	31.68811 AU
min. Earth dist.	-5184 Jan 11 j 02:15	9°II44'19	31.31386 AU				
direct	-5184 Mar 29 j 02:44	8°II27'14		conjunction	-5176 Aug 01 j 20:55	29°II25'55	16°10'17
max. Earth dist.	-5184 Jul 11 j 00:42	10°II48'06	33.14687 AU	minimum elong	-5176 Aug 01 j 20:39	29°II25'53	16°10'34
					-5176 Aug 16 j 13:01	0°☾	
conjunction	-5184 Jul 14 j 06:23	10°II55'10	14°01'24	retrograde	-5176 Nov 12 j 16:15	1°☾59'55	
minimum elong	-5184 Jul 14 j 05:58	10°II55'08	14°01'39	opposition	-5175 Jan 28 j 12:28	0°☾38'21	17°20'09
retrograde	-5184 Oct 24 j 15:17	13°II18'41		min. Earth dist.	-5175 Jan 30 j 21:18	0°☾34'25	29.70049 AU
opposition	-5183 Jan 09 j 13:30	12°II00'01	15°05'29		-5175 Feb 21 j 12:01	30°☾II	
min. Earth dist.	-5183 Jan 12 j 12:42	11°II55'17	31.10878 AU	direct	-5175 Apr 18 j 23:02	29°II13'18	
direct	-5183 Mar 31 j 11:59	10°II37'47			-5175 Jun 12 j 00:22	0°☾	
max. Earth dist.	-5183 Jul 13 j 14:22	13°II00'16	32.94094 AU	max. Earth dist.	-5175 Aug 02 j 02:17	1°☾47'21	31.54341 AU
conjunction	-5183 Jul 16 j 17:54	13°II07'12	14°21'29	conjunction	-5175 Aug 04 j 13:44	1°☾53'11	16°20'15
minimum elong	-5183 Jul 16 j 17:30	13°II07'10	14°21'46	minimum elong	-5175 Aug 04 j 13:31	1°☾53'09	16°20'33
retrograde	-5183 Oct 27 j 03:13	15°II32'07		retrograde	-5175 Nov 15 j 11:43	4°☾28'20	
opposition	-5182 Jan 12 j 01:22	14°II13'04	15°26'41	opposition	-5174 Jan 31 j 07:10	3°☾06'30	17°30'14
min. Earth dist.	-5182 Jan 14 j 23:28	14°II08'23	30.90830 AU	min. Earth dist.	-5174 Feb 02 j 14:25	3°☾02'41	29.56191 AU
direct	-5182 Apr 02 j 23:35	12°II50'25		direct	-5174 Apr 21 j 14:59	1°☾41'14	
max. Earth dist.	-5182 Jul 16 j 02:50	15°II14'19	32.74014 AU	max. Earth dist.	-5174 Aug 04 j 23:22	4°☾16'39	31.40755 AU
conjunction	-5182 Jul 19 j 05:58	15°II21'17	14°40'36	conjunction	-5174 Aug 07 j 07:11	4°☾22'10	16°28'37
minimum elong	-5182 Jul 19 j 05:34	15°II21'15	14°40'53	minimum elong	-5174 Aug 07 j 06:58	4°☾22'09	16°28'54
retrograde	-5182 Oct 29 j 17:58	17°II47'35		retrograde	-5174 Nov 18 j 07:00	6°☾58'24	
opposition	-5181 Jan 14 j 14:01	16°II28'07	15°46'51	opposition	-5173 Feb 03 j 02:43	5°☾36'19	17°38'35
min. Earth dist.	-5181 Jan 17 j 10:41	16°II23'30	30.71332 AU	min. Earth dist.	-5173 Feb 05 j 07:19	5°☾32'40	29.43168 AU
direct	-5181 Apr 05 j 11:00	15°II05'03		direct	-5173 Apr 24 j 10:20	4°☾10'51	
max. Earth dist.	-5181 Jul 18 j 18:12	17°II30'32	32.54518 AU	max. Earth dist.	-5173 Aug 07 j 18:48	6°☾47'21	31.28037 AU
conjunction	-5181 Jul 21 j 18:54	17°II37'20	14°58'42	conjunction	-5173 Aug 10 j 01:08	6°☾52'45	16°35'19
minimum elong	-5181 Jul 21 j 18:32	17°II37'18	14°59'00	minimum elong	-5173 Aug 10 j 00:59	6°☾52'44	16°35'37
retrograde	-5181 Nov 01 j 07:23	20°II04'59		retrograde	-5173 Nov 21 j 04:48	9°☾29'59	



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 15

Attention, astronomical year style is used: The year -5172 in astronomical counting style is the year 5173 BCE in historical counting style.

opposition	-5172 Feb 05 j 22:54	8° $\overline{07}$ '39	17°45'07	min. Earth dist.	-5164 Feb 28 j 11:32	28° $\overline{04}$ '49	28.67378 AU
min. Earth dist.	-5172 Feb 08 j 01:09	8° $\overline{04}$ '09	29.30997 AU	direct	-5164 May 17 j 09:07	27° $\overline{02}$ '18	
direct	-5172 Apr 26 j 05:36	6° $\overline{04}$ '00			-5164 Aug 27 j 22:15	0° $\overline{00}$	
max. Earth dist.	-5172 Aug 09 j 17:01	9° $\overline{01}$ '42	31.16186 AU	max. Earth dist.	-5164 Aug 31 j 07:49	0° $\overline{00}$ '21	30.57233 AU
conjunction	-5172 Aug 11 j 19:40	9° $\overline{02}$ '46	16°40'18	conjunction	-5164 Sep 01 j 08:30	0° $\overline{01}$ '52	16°13'12
minimum elong	-5172 Aug 11 j 19:31	9° $\overline{02}$ '45	16°40'35	minimum elong	-5164 Sep 01 j 08:41	0° $\overline{01}$ '53	16°13'28
retrograde	-5172 Nov 22 j 23:46	12° $\overline{00}$ '54		retrograde	-5164 Dec 13 j 23:42	2° $\overline{05}$ '45	
opposition	-5171 Feb 07 j 19:49	10° $\overline{04}$ '20	17°49'47	opposition	-5163 Mar 01 j 09:21	1° $\overline{02}$ '01	17°14'07
min. Earth dist.	-5171 Feb 09 j 20:00	10° $\overline{03}$ '59	29.19649 AU	min. Earth dist.	-5163 Mar 02 j 07:55	1° $\overline{02}$ '26	28.64464 AU
direct	-5171 Apr 29 j 01:49	9° $\overline{01}$ '43		direct	-5163 May 20 j 05:45	0° $\overline{00}$ '47	
max. Earth dist.	-5171 Aug 12 j 13:42	11° $\overline{05}$ '08	31.05212 AU	max. Earth dist.	-5163 Sep 03 j 08:23	2° $\overline{04}$ '11	30.55124 AU
conjunction	-5171 Aug 14 j 14:33	11° $\overline{05}$ '02	16°43'32	conjunction	-5163 Sep 04 j 04:24	2° $\overline{04}$ '14	16°01'02
minimum elong	-5171 Aug 14 j 14:28	11° $\overline{05}$ '02	16°43'49	minimum elong	-5163 Sep 04 j 04:39	2° $\overline{04}$ '15	16°01'17
retrograde	-5171 Nov 25 j 21:45	14° $\overline{03}$ '58		retrograde	-5163 Dec 16 j 20:27	5° $\overline{03}$ '09	
opposition	-5170 Feb 10 j 17:07	13° $\overline{01}$ '11	17°52'33	opposition	-5162 Mar 04 j 08:54	4° $\overline{00}$ '27	17°00'11
min. Earth dist.	-5170 Feb 12 j 14:14	13° $\overline{01}$ '02	29.09165 AU	min. Earth dist.	-5162 Mar 05 j 03:34	4° $\overline{00}$ '58	28.62713 AU
direct	-5170 May 01 j 22:24	11° $\overline{04}$ '12		direct	-5162 May 23 j 05:09	2° $\overline{04}$ '22	
max. Earth dist.	-5170 Aug 15 j 12:44	14° $\overline{02}$ '48	30.95141 AU	max. Earth dist.	-5162 Sep 06 j 06:45	5° $\overline{02}$ '37	30.54198 AU
conjunction	-5170 Aug 17 j 09:57	14° $\overline{03}$ '22	16°44'58	conjunction	-5162 Sep 07 j 00:05	5° $\overline{02}$ '33	15°46'58
minimum elong	-5170 Aug 17 j 09:53	14° $\overline{03}$ '21	16°45'14	minimum elong	-5162 Sep 07 j 00:20	5° $\overline{02}$ '35	15°47'13
retrograde	-5170 Nov 28 j 18:00	17° $\overline{01}$ '00		retrograde	-5162 Dec 19 j 19:00	8° $\overline{00}$ '26	
opposition	-5169 Feb 13 j 15:13	15° $\overline{04}$ '00	17°53'19	opposition	-5161 Mar 07 j 08:32	6° $\overline{04}$ '36	16°44'11
min. Earth dist.	-5169 Feb 15 j 10:24	15° $\overline{04}$ '58	28.99574 AU	min. Earth dist.	-5161 Mar 07 j 23:38	6° $\overline{04}$ '42	28.62114 AU
direct	-5169 May 04 j 19:23	14° $\overline{02}$ '53		direct	-5161 May 26 j 03:34	5° $\overline{01}$ '51	
max. Earth dist.	-5169 Aug 18 j 10:41	17° $\overline{00}$ '13	30.86037 AU				
conjunction	-5169 Aug 20 j 05:19	17° $\overline{00}$ '32	16°44'31	conjunction	-5161 Sep 09 j 19:40	8° $\overline{00}$ '24	15°31'03
minimum elong	-5169 Aug 20 j 05:18	17° $\overline{00}$ '32	16°44'48	minimum elong	-5161 Sep 09 j 19:59	8° $\overline{00}$ '23	15°31'17
retrograde	-5169 Dec 01 j 15:37	19° $\overline{04}$ '47		max. Earth dist.	-5161 Sep 09 j 07:07	8° $\overline{00}$ '14	30.54418 AU
opposition	-5168 Feb 16 j 13:32	18° $\overline{02}$ '43	17°52'04	retrograde	-5161 Dec 22 j 15:01	10° $\overline{04}$ '44	
min. Earth dist.	-5168 Feb 18 j 04:48	18° $\overline{02}$ '14	28.90943 AU	opposition	-5160 Mar 09 j 08:07	9° $\overline{02}$ '07	16°26'14
direct	-5168 May 06 j 17:23	16° $\overline{05}$ '20		min. Earth dist.	-5160 Mar 09 j 20:07	9° $\overline{01}$ '57	28.62596 AU
max. Earth dist.	-5168 Aug 20 j 09:57	19° $\overline{03}$ '26	30.77947 AU	direct	-5160 May 28 j 03:01	7° $\overline{05}$ '04	
conjunction	-5168 Aug 22 j 01:05	19° $\overline{04}$ '24	16°42'11	conjunction	-5160 Sep 11 j 15:02	10° $\overline{03}$ '24	15°13'21
minimum elong	-5168 Aug 22 j 01:05	19° $\overline{04}$ '24	16°42'27	minimum elong	-5160 Sep 11 j 15:20	10° $\overline{03}$ '26	15°13'35
retrograde	-5168 Dec 03 j 11:08	22° $\overline{02}$ '40		max. Earth dist.	-5160 Sep 11 j 04:55	10° $\overline{03}$ '23	30.55731 AU
opposition	-5167 Feb 18 j 12:10	21° $\overline{00}$ '46	17°48'45	retrograde	-5160 Dec 24 j 13:08	13° $\overline{02}$ '01	
min. Earth dist.	-5167 Feb 20 j 01:23	20° $\overline{05}$ '09	28.83338 AU	opposition	-5159 Mar 12 j 07:17	11° $\overline{05}$ '19	16°06'22
direct	-5167 May 09 j 14:20	19° $\overline{03}$ '42		min. Earth dist.	-5159 Mar 12 j 15:21	11° $\overline{05}$ '46	28.64139 AU
max. Earth dist.	-5167 Aug 23 j 09:17	22° $\overline{01}$ '09	30.70967 AU	direct	-5159 May 31 j 01:11	10° $\overline{03}$ '14	
conjunction	-5167 Aug 24 j 20:53	22° $\overline{01}$ '47	16°37'54	conjunction	-5159 Sep 14 j 10:17	13° $\overline{01}$ '33	14°53'55
minimum elong	-5167 Aug 24 j 20:58	22° $\overline{01}$ '48	16°38'11	minimum elong	-5159 Sep 14 j 10:39	13° $\overline{01}$ '35	14°54'08
retrograde	-5167 Dec 06 j 09:01	25° $\overline{00}$ '56		max. Earth dist.	-5159 Sep 14 j 04:38	13° $\overline{01}$ '45	30.58099 AU
opposition	-5166 Feb 21 j 11:08	23° $\overline{03}$ '24	17°43'18		-5159 Oct 30 j 21:36	15° $\overline{00}$	
min. Earth dist.	-5166 Feb 22 j 19:57	23° $\overline{03}$ '50	28.76834 AU	retrograde	-5159 Dec 27 j 09:18	15° $\overline{05}$ '37	
direct	-5166 May 12 j 12:41	22° $\overline{01}$ '01			-5158 Feb 26 j 21:38	15° $\overline{08}$ ' $\overline{00}$	
max. Earth dist.	-5166 Aug 26 j 08:35	24° $\overline{05}$ '16	30.65148 AU	opposition	-5158 Mar 15 j 06:34	14° $\overline{02}$ '33	15°44'41
conjunction	-5166 Aug 27 j 16:42	24° $\overline{05}$ '33	16°31'39	min. Earth dist.	-5158 Mar 15 j 11:59	14° $\overline{02}$ '47	28.66694 AU
minimum elong	-5166 Aug 27 j 16:48	24° $\overline{05}$ '34	16°31'55	direct	-5158 Jun 03 j 01:28	13° $\overline{00}$ '52	
retrograde	-5166 Dec 09 j 05:16	27° $\overline{03}$ '03			-5158 Aug 26 j 22:59	15° $\overline{00}$	
opposition	-5165 Feb 24 j 10:32	26° $\overline{01}$ '42	17°35'43	conjunction	-5158 Sep 17 j 04:57	15° $\overline{05}$ '53	14°32'50
min. Earth dist.	-5165 Feb 25 j 16:40	26° $\overline{01}$ '12	28.71504 AU	minimum elong	-5158 Sep 17 j 05:18	15° $\overline{05}$ '56	14°33'04
direct	-5165 May 15 j 09:28	24° $\overline{04}$ '01		max. Earth dist.	-5158 Sep 17 j 01:48	15° $\overline{05}$ '34	30.61504 AU
max. Earth dist.	-5165 Aug 29 j 08:56	27° $\overline{03}$ '46	30.60572 AU	retrograde	-5158 Dec 30 j 06:09	18° $\overline{03}$ '18	
conjunction	-5165 Aug 30 j 12:40	27° $\overline{03}$ '37	16°23'25	opposition	-5157 Mar 18 j 05:23	17° $\overline{00}$ '08	15°21'15
minimum elong	-5165 Aug 30 j 12:51	27° $\overline{03}$ '38	16°23'41	min. Earth dist.	-5157 Mar 18 j 06:23	17° $\overline{00}$ '01	28.70264 AU
retrograde	-5165 Nov 12 j 23:19	0° $\overline{00}$		direct	-5157 Jun 06 j 00:37	15° $\overline{04}$ '30	
	-5165 Dec 12 j 02:02	0° $\overline{01}$ '15	20	conjunction	-5157 Sep 19 j 23:24	18° $\overline{02}$ '53	14°10'11
	-5164 Jan 11 j 02:53	30° $\overline{08}$ ' $\overline{00}$		minimum elong	-5157 Sep 19 j 23:48	18° $\overline{02}$ '55	14°10'23
opposition	-5164 Feb 27 j 09:50	28° $\overline{05}$ '13	17°25'59	max. Earth dist.	-5157 Sep 20 j 00:20	18° $\overline{02}$ '59	30.65929 AU
				retrograde	-5156 Jan 02 j 00:23	21° $\overline{00}$ '52	



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 16

Attention, astronomical year style is used: The year -5156 in astronomical counting style is the year 5157 BCE in historical counting style.

opposition	-5156 Mar 20 j 03:48	19°041'55	14°56'09	min. Earth dist.	-5148 Apr 08 j 12:00	9°02'57	29.50671 AU
min. Earth dist.	-5156 Mar 20 j 02:28	19°042'01	28.74846 AU	opposition	-5148 Apr 09 j 18:27	9°01'55	10°46'13
direct	-5156 Jun 07 j 22:46	18°017'04		direct	-5148 Jun 28 j 11:15	7°05'46	
conjunction	-5156 Sep 21 j 17:12	20°058'20	13°46'01	conjunction	-5148 Oct 10 j 18:03	10°02'36	9°48'47
minimum elong	-5156 Sep 21 j 17:35	20°058'23	13°46'14	minimum elong	-5148 Oct 10 j 18:26	10°02'38	9°48'55
max. Earth dist.	-5156 Sep 21 j 21:07	20°058'44	30.71402 AU	max. Earth dist.	-5148 Oct 12 j 02:15	10°03'41	31.54516 AU
retrograde	-5155 Jan 03 j 20:11	23°037'37		retrograde	-5147 Jan 22 j 23:14	13°01'29	
opposition	-5155 Mar 23 j 01:37	22°014'27	14°29'28	min. Earth dist.	-5147 Apr 11 j 03:01	11°04'17	29.64711 AU
min. Earth dist.	-5155 Mar 22 j 19:49	22°014'51	28.80465 AU	opposition	-5147 Apr 12 j 11:25	11°04'08	10°10'29
direct	-5155 Jun 10 j 22:04	20°049'49		direct	-5147 Jul 01 j 05:05	10°01'8'25	
conjunction	-5155 Sep 24 j 10:24	23°030'05	13°20'25	conjunction	-5147 Oct 13 j 06:12	12°04'8'54	9°15'11
minimum elong	-5155 Sep 24 j 10:49	23°030'08	13°20'36	minimum elong	-5147 Oct 13 j 06:35	12°04'8'57	9°15'16
max. Earth dist.	-5155 Sep 24 j 18:09	23°030'52	30.77927 AU	max. Earth dist.	-5147 Oct 14 j 16:15	12°05'2'09	31.69314 AU
retrograde	-5154 Jan 06 j 13:09	26°008'37		retrograde	-5146 Jan 25 j 13:59	15°01'9'42	
opposition	-5154 Mar 25 j 23:07	24°045'33	14°01'17	min. Earth dist.	-5146 Apr 13 j 15:20	14°01'0'03	29.79549 AU
min. Earth dist.	-5154 Mar 25 j 14:38	24°046'08	28.87166 AU	opposition	-5146 Apr 15 j 03:34	13°05'8'39	9°34'08
direct	-5154 Jun 13 j 18:50	23°021'12		direct	-5146 Jul 03 j 21:54	12°03'7'22	
conjunction	-5154 Sep 27 j 03:04	26°000'22	12°53'29	conjunction	-5146 Oct 15 j 17:54	15°06'6'31	8°41'02
minimum elong	-5154 Sep 27 j 03:29	26°000'24	12°53'40	minimum elong	-5146 Oct 15 j 18:16	15°06'6'33	8°41'08
max. Earth dist.	-5154 Sep 27 j 14:38	26°001'31	30.85576 AU	max. Earth dist.	-5146 Oct 17 j 07:12	15°07'1'02	31.84855 AU
retrograde	-5153 Jan 09 j 05:24	28°038'04		retrograde	-5145 Jan 28 j 01:25	17°03'6'11	
opposition	-5153 Mar 28 j 19:55	27°015'09	13°31'41	min. Earth dist.	-5145 Apr 16 j 05:22	16°01'7'55	29.95125 AU
min. Earth dist.	-5153 Mar 28 j 06:53	27°016'03	28.94990 AU	opposition	-5145 Apr 17 j 19:07	16°01'5'26	8°57'17
direct	-5153 Jun 16 j 16:45	25°051'05		direct	-5145 Jul 06 j 13:08	14°05'4'34	
conjunction	-5153 Sep 29 j 19:01	28°029'07	12°25'16	conjunction	-5145 Oct 18 j 04:50	17°02'2'19	8°06'27
minimum elong	-5153 Sep 29 j 19:27	28°029'09	12°25'25	minimum elong	-5145 Oct 18 j 05:10	17°02'2'21	8°06'31
max. Earth dist.	-5153 Sep 30 j 09:53	28°030'35	30.94361 AU	max. Earth dist.	-5145 Oct 19 j 20:15	17°02'6'02	32.01100 AU
retrograde	-5153 Nov 09 j 12:03	0°00'00		retrograde	-5144 Jan 30 j 12:50	19°05'0'50	
opposition	-5152 Jan 11 j 21:51	1°00'5'56		min. Earth dist.	-5144 Apr 17 j 16:28	18°03'3'04	30.11385 AU
min. Earth dist.	-5152 Mar 20 j 08:09	30°00'00		opposition	-5144 Apr 19 j 09:41	18°03'0'22	8°20'02
direct	-5152 Mar 30 j 16:12	29°043'12	13°00'45	direct	-5144 Jul 08 j 05:47	17°00'9'54	
conjunction	-5152 Mar 29 j 23:54	29°044'19	29.03969 AU	conjunction	-5144 Oct 19 j 15:00	19°03'6'15	7°31'31
direct	-5152 Jun 18 j 11:19	28°019'27		minimum elong	-5144 Oct 19 j 15:19	19°03'6'17	7°31'36
retrograde	-5152 Sep 07 j 02:40	0°00'00		max. Earth dist.	-5144 Oct 21 j 08:49	19°04'0'09	32.17991 AU
conjunction	-5152 Oct 01 j 10:33	0°00'5'6'19	11°55'53	retrograde	-5143 Jan 31 j 23:28	22°03'3'34	
minimum elong	-5152 Oct 01 j 10:58	0°00'5'6'21	11°56'03	min. Earth dist.	-5143 Apr 20 j 04:28	20°04'6'12	30.28327 AU
max. Earth dist.	-5152 Oct 02 j 05:36	0°00'5'8'11	31.04299 AU	opposition	-5143 Apr 21 j 23:31	20°04'3'24	7°42'28
retrograde	-5151 Jan 13 j 12:48	3°00'3'2'12		direct	-5143 Jul 10 j 19:55	19°02'3'20	
opposition	-5151 Apr 02 j 11:37	2°00'9'4'3	12°28'38	conjunction	-5143 Oct 22 j 00:29	21°04'8'15	6°56'20
min. Earth dist.	-5151 Apr 01 j 15:32	2°00'1'1'05	29.14067 AU	minimum elong	-5143 Oct 22 j 00:47	21°04'8'17	6°56'23
direct	-5151 Jun 21 j 07:28	0°00'4'6'20		max. Earth dist.	-5143 Oct 23 j 21:06	21°05'2'23	32.35557 AU
conjunction	-5151 Oct 04 j 01:19	3°00'2'1'58	11°25'26	retrograde	-5142 Feb 03 j 07:18	24°01'4'22	
minimum elong	-5151 Oct 04 j 01:44	3°00'2'2'00	11°25'34	min. Earth dist.	-5142 Apr 22 j 14:34	22°05'7'27	30.45954 AU
max. Earth dist.	-5151 Oct 04 j 23:01	3°00'2'4'06	31.15345 AU	opposition	-5142 Apr 24 j 12:31	22°05'4'28	7°04'41
retrograde	-5150 Jan 16 j 04:33	5°00'5'6'55		direct	-5142 Jul 13 j 10:41	21°03'4'47	
min. Earth dist.	-5150 Apr 04 j 06:54	4°00'3'6'17	29.25271 AU	conjunction	-5142 Oct 24 j 08:57	23°05'8'16	6°20'57
opposition	-5150 Apr 05 j 06:38	4°00'3'4'40	11°55'25	minimum elong	-5142 Oct 24 j 09:13	23°05'8'18	6°21'00
direct	-5150 Jun 24 j 00:58	3°00'1'1'41		max. Earth dist.	-5142 Oct 26 j 07:26	24°02'0'2'32	32.53800 AU
conjunction	-5150 Oct 06 j 15:30	5°00'4'6'05	10°54'02	retrograde	-5141 Feb 05 j 15:17	26°02'3'11	
minimum elong	-5150 Oct 06 j 15:55	5°00'4'6'07	10°54'11	min. Earth dist.	-5141 Apr 25 j 00:15	25°00'6'42	30.64319 AU
max. Earth dist.	-5150 Oct 07 j 17:39	5°00'4'8'38	31.27452 AU	opposition	-5141 Apr 27 j 00:48	25°00'3'34	6°26'46
retrograde	-5149 Jan 18 j 18:25	8°00'2'0'03		direct	-5141 Jul 15 j 22:04	23°04'4'16	
min. Earth dist.	-5149 Apr 06 j 22:25	6°00'5'9'52	29.37491 AU	conjunction	-5141 Oct 26 j 16:58	26°00'6'21	5°45'26
opposition	-5149 Apr 08 j 01:00	6°00'5'8'05	11°21'14	minimum elong	-5141 Oct 26 j 17:13	26°00'6'22	5°45'28
direct	-5149 Jun 26 j 19:16	5°00'3'5'31		max. Earth dist.	-5141 Oct 26 j 18:55	26°00'1'0'54	32.72763 AU
conjunction	-5149 Oct 09 j 05:00	8°00'8'8'38	10°21'47	retrograde	-5140 Feb 07 j 21:22	28°03'0'02	
minimum elong	-5149 Oct 09 j 05:25	8°00'8'8'40	10°21'54	min. Earth dist.	-5140 Apr 26 j 09:21	27°01'3'58	30.83416 AU
max. Earth dist.	-5149 Oct 10 j 09:18	8°00'1'1'22	31.40536 AU	opposition	-5140 Apr 28 j 12:00	27°01'0'43	5°48'46
retrograde	-5148 Jan 21 j 09:55	10°00'4'1'35		direct	-5140 Jul 17 j 09:42	25°05'1'50	



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 17

Attention, astronomical year style is used: The year -5140 in astronomical counting style is the year 5141 BCE in historical counting style.

conjunction	-5140 Oct 28 j 00:05	28° $\overline{11}$ 12'30	5°09'53	conjunction	-5132 Nov 12 j 10:17	13° $\overline{15}$ 59'53	0°31'24
minimum elong	-5140 Oct 28 j 00:18	28° $\overline{11}$ 12'31	5°09'56	minimum elong	-5132 Nov 12 j 10:18	13° $\overline{15}$ 59'53	0°31'22
max. Earth dist.	-5140 Oct 30 j 03:29	28° $\overline{11}$ 17'08	32.92447 AU	max. Earth dist.	-5132 Nov 15 j 04:57	14° $\overline{15}$ 05'31	34.69683 AU
	-5140 Dec 23 j 08:34	0° $\overline{15}$		retrograde	-5131 Feb 24 j 15:34	16° $\overline{15}$ 13'15	
retrograde	-5139 Feb 09 j 05:42	0° $\overline{15}$ 35'00		min. Earth dist.	-5131 May 14 j 13:25	15° $\overline{15}$ 01'02	32.81407 AU
	-5139 Mar 31 j 10:45	30° $\overline{18}$		opposition	-5131 May 17 j 08:18	14° $\overline{15}$ 56'57	0°15'20
min. Earth dist.	-5139 Apr 28 j 16:32	29° $\overline{11}$ 19'26	31.03263 AU	direct	-5131 Aug 05 j 08:01	13° $\overline{15}$ 41'51	
opposition	-5139 Apr 30 j 22:32	29° $\overline{11}$ 16'00	5°10'47	desc. node	-5131 Oct 24 j 01:44	15° $\overline{15}$ 08'34	
direct	-5139 Jul 19 j 19:08	27° $\overline{11}$ 57'32					
	-5139 Oct 22 j 10:01	0° $\overline{15}$		conjunction	-5131 Nov 14 j 11:38	15° $\overline{15}$ 50'50	0°-1'-58
conjunction	-5139 Oct 30 j 06:31	0° $\overline{15}$ 16'49	4°34'22	minimum elong	-5131 Nov 14 j 11:38	15° $\overline{15}$ 50'50	0°02'03
minimum elong	-5139 Oct 30 j 06:43	0° $\overline{15}$ 16'50	4°34'23	behind sun begin	-5131 Nov 14 j 05:16	15° $\overline{15}$ 50'20	
max. Earth dist.	-5139 Nov 01 j 13:22	0° $\overline{15}$ 21'44	33.12836 AU	behind sun end	-5131 Nov 14 j 18:00	15° $\overline{15}$ 51'20	
retrograde	-5138 Feb 11 j 11:56	2° $\overline{15}$ 38'09		max. Earth dist.	-5131 Nov 17 j 06:35	15° $\overline{15}$ 56'27	34.93296 AU
min. Earth dist.	-5138 May 01 j 00:56	1° $\overline{15}$ 23'00	31.23811 AU	retrograde	-5130 Feb 26 j 18:01	18° $\overline{15}$ 03'06	
opposition	-5138 May 03 j 08:25	1° $\overline{15}$ 19'29	4°32'54	min. Earth dist.	-5130 May 16 j 15:03	16° $\overline{15}$ 51'18	33.05139 AU
direct	-5138 Jul 22 j 05:12	0° $\overline{15}$ 01'27		opposition	-5130 May 19 j 12:18	16° $\overline{15}$ 47'06	0°-19'-45
				direct	-5130 Aug 07 j 11:06	15° $\overline{15}$ 32'21	
conjunction	-5138 Nov 01 j 12:18	2° $\overline{15}$ 19'23	3°58'56	conjunction	-5130 Nov 16 j 12:30	17° $\overline{15}$ 40'07	0°-34'-47
minimum elong	-5138 Nov 01 j 12:28	2° $\overline{15}$ 19'24	3°58'57	minimum elong	-5130 Nov 16 j 12:28	17° $\overline{15}$ 40'07	0°34'51
max. Earth dist.	-5138 Nov 03 j 20:29	2° $\overline{15}$ 24'23	33.33890 AU	max. Earth dist.	-5130 Nov 19 j 09:34	17° $\overline{15}$ 45'51	35.17146 AU
retrograde	-5137 Feb 13 j 19:57	4° $\overline{15}$ 39'33		retrograde	-5129 Feb 28 j 18:57	19° $\overline{15}$ 51'17	
min. Earth dist.	-5137 May 03 j 06:38	3° $\overline{15}$ 24'55	31.45013 AU	min. Earth dist.	-5129 May 18 j 18:06	18° $\overline{15}$ 39'46	33.29155 AU
opposition	-5137 May 05 j 17:21	3° $\overline{15}$ 21'14	3°55'09	opposition	-5129 May 21 j 15:34	18° $\overline{15}$ 35'35	0°-54'-20
direct	-5137 Jul 24 j 13:28	2° $\overline{15}$ 03'38		direct	-5129 Aug 09 j 14:47	17° $\overline{15}$ 21'11	
conjunction	-5137 Nov 03 j 17:26	4° $\overline{15}$ 20'15	3°23'39	conjunction	-5129 Nov 18 j 12:45	19° $\overline{15}$ 27'46	-1°-7'-9
minimum elong	-5137 Nov 03 j 17:34	4° $\overline{15}$ 20'16	3°23'38	minimum elong	-5129 Nov 18 j 12:42	19° $\overline{15}$ 27'46	1°07'15
max. Earth dist.	-5137 Nov 06 j 04:18	4° $\overline{15}$ 25'26	33.55524 AU	max. Earth dist.	-5129 Nov 21 j 10:44	19° $\overline{15}$ 33'32	35.41288 AU
retrograde	-5136 Feb 16 j 01:18	6° $\overline{15}$ 39'16		retrograde	-5128 Mar 01 j 20:23	21° $\overline{15}$ 37'52	
min. Earth dist.	-5136 May 04 j 14:01	5° $\overline{15}$ 25'02	31.66786 AU	min. Earth dist.	-5128 May 19 j 18:23	20° $\overline{15}$ 26'45	33.53483 AU
opposition	-5136 May 07 j 01:42	5° $\overline{15}$ 21'18	3°17'39	opposition	-5128 May 22 j 18:02	20° $\overline{15}$ 22'27	-1°-28'-21
direct	-5136 Jul 25 j 21:17	4° $\overline{15}$ 04'09		direct	-5128 Aug 10 j 18:09	19° $\overline{15}$ 08'25	
conjunction	-5136 Nov 04 j 21:59	6° $\overline{15}$ 19'27	2°48'34	conjunction	-5128 Nov 19 j 12:16	21° $\overline{15}$ 13'52	-1°-39'-1
minimum elong	-5136 Nov 04 j 22:06	6° $\overline{15}$ 19'28	2°48'34	minimum elong	-5128 Nov 19 j 12:13	21° $\overline{15}$ 13'52	1°39'07
max. Earth dist.	-5136 Nov 07 j 10:31	6° $\overline{15}$ 24'44	33.77667 AU	max. Earth dist.	-5128 Nov 22 j 11:41	21° $\overline{15}$ 19'42	35.65729 AU
retrograde	-5135 Feb 17 j 06:07	8° $\overline{15}$ 37'18		retrograde	-5127 Mar 03 j 20:08	23° $\overline{15}$ 22'55	
min. Earth dist.	-5135 May 06 j 18:54	7° $\overline{15}$ 23'35	31.89034 AU	min. Earth dist.	-5127 May 21 j 19:25	22° $\overline{15}$ 12'09	33.78157 AU
opposition	-5135 May 09 j 09:07	7° $\overline{15}$ 19'42	2°40'25	opposition	-5127 May 24 j 19:59	22° $\overline{15}$ 07'50	-2°-1'-48
direct	-5135 Jul 28 j 07:05	6° $\overline{15}$ 03'00		direct	-5127 Aug 12 j 19:54	20° $\overline{15}$ 54'09	
conjunction	-5135 Nov 07 j 01:52	8° $\overline{15}$ 17'01	2°13'46	conjunction	-5127 Nov 21 j 11:26	22° $\overline{15}$ 58'30	-2°-10'-20
minimum elong	-5135 Nov 07 j 01:58	8° $\overline{15}$ 17'02	2°13'44	minimum elong	-5127 Nov 21 j 11:21	22° $\overline{15}$ 58'29	2°10'27
max. Earth dist.	-5135 Nov 09 j 15:52	8° $\overline{15}$ 22'23	34.00221 AU	max. Earth dist.	-5127 Nov 24 j 12:43	23° $\overline{15}$ 04'26	35.90508 AU
retrograde	-5134 Feb 19 j 10:54	10° $\overline{15}$ 33'45		retrograde	-5126 Mar 05 j 16:52	25° $\overline{15}$ 06'32	
min. Earth dist.	-5134 May 09 j 00:37	9° $\overline{15}$ 20'25	32.11699 AU	min. Earth dist.	-5126 May 23 j 19:14	23° $\overline{15}$ 56'10	34.03156 AU
opposition	-5134 May 11 j 16:06	9° $\overline{15}$ 16'29	2°03'31	opposition	-5126 May 26 j 21:14	23° $\overline{15}$ 51'46	-2°-34'-37
direct	-5134 Jul 30 j 14:13	8° $\overline{15}$ 00'12		direct	-5126 Aug 14 j 23:31	22° $\overline{15}$ 38'29	
conjunction	-5134 Nov 09 j 05:16	10° $\overline{15}$ 12'57	1°39'17	conjunction	-5126 Nov 23 j 09:52	24° $\overline{15}$ 41'45	-2°-41'-6
minimum elong	-5134 Nov 09 j 05:20	10° $\overline{15}$ 12'58	1°39'15	minimum elong	-5126 Nov 23 j 09:46	24° $\overline{15}$ 41'45	2°41'13
max. Earth dist.	-5134 Nov 11 j 21:19	10° $\overline{15}$ 18'27	34.23125 AU	max. Earth dist.	-5126 Nov 26 j 11:33	24° $\overline{15}$ 47'41	36.15583 AU
retrograde	-5133 Feb 21 j 12:32	12° $\overline{15}$ 28'33		retrograde	-5125 Mar 07 j 15:12	26° $\overline{15}$ 48'50	
min. Earth dist.	-5133 May 11 j 05:28	11° $\overline{15}$ 15'38	32.34676 AU	min. Earth dist.	-5125 May 25 j 18:21	25° $\overline{15}$ 38'52	34.28462 AU
opposition	-5133 May 13 j 22:15	11° $\overline{15}$ 11'38	1°27'01	opposition	-5125 May 28 j 21:57	25° $\overline{15}$ 34'24	-3°-6'-49
direct	-5133 Aug 01 j 22:07	9° $\overline{15}$ 55'46		direct	-5125 Aug 17 j 00:07	24° $\overline{15}$ 21'30	
conjunction	-5133 Nov 11 j 08:03	12° $\overline{15}$ 07'15	1°05'08	conjunction	-5125 Nov 25 j 08:02	26° $\overline{15}$ 23'44	-3°-11'-18
minimum elong	-5133 Nov 11 j 08:05	12° $\overline{15}$ 07'15	1°05'06	minimum elong	-5125 Nov 25 j 07:55	26° $\overline{15}$ 23'43	3°11'26
max. Earth dist.	-5133 Nov 14 j 00:25	12° $\overline{15}$ 12'44	34.46289 AU	max. Earth dist.	-5125 Nov 28 j 11:51	26° $\overline{15}$ 29'47	36.40913 AU
retrograde	-5132 Feb 23 j 14:58	14° $\overline{15}$ 21'43		retrograde	-5124 Mar 08 j 11:49	28° $\overline{15}$ 20'52	
min. Earth dist.	-5132 May 12 j 09:04	13° $\overline{15}$ 09'12	32.57928 AU	min. Earth dist.	-5124 May 26 j 18:13	27° $\overline{15}$ 22'14	34.53993 AU
opposition	-5132 May 15 j 03:33	13° $\overline{15}$ 05'08	0°50'57	opposition	-5124 May 29 j 21:54	27° $\overline{15}$ 15'47	-3°-38'-23
direct	-5132 Aug 03 j 02:52	11° $\overline{15}$ 49'39		direct	-5124 Aug 18 j 00:56	26° $\overline{15}$ 03'17	



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:33, page 18

Attention, astronomical year style is used: The year -5124 in astronomical counting style is the year 5125 BCE in historical counting style.

conjunction	-5124 Nov 26 j 05:35	28° <del>2</del> 04'29	-3°-40'-55	direct	-5116 Aug 31 j 07:42	8° <del>8</del> 53'50	
minimum elong	-5124 Nov 26 j 05:27	28° <del>2</del> 04'28	3°41'03				
max. Earth dist.	-5124 Nov 29 j 09:24	28° <del>2</del> 10'30	36.66432 AU	conjunction	-5116 Dec 08 j 18:36	10° <del>1</del> 47'32	-7°-16'-10
	-5123 Feb 11 j 21:35	0° <del>0</del>		minimum elong	-5116 Dec 08 j 18:24	10° <del>1</del> 47'31	7°16'22
retrograde	-5123 Mar 10 j 10:51	0° <del>0</del> 09'42		max. Earth dist.	-5116 Dec 12 j 02:52	10° <del>1</del> 53'32	38.70309 AU
	-5123 Apr 06 j 14:04	30° <del>0</del> <del>0</del>		retrograde	-5115 Mar 22 j 23:50	12° <del>0</del> 45'44	
min. Earth dist.	-5123 May 28 j 15:51	29° <del>2</del> 00'30	34.79697 AU	min. Earth dist.	-5115 Jun 10 j 15:06	11° <del>0</del> 38'44	36.84774 AU
opposition	-5123 May 31 j 21:26	28° <del>2</del> 55'58	-4°-9'-18	opposition	-5115 Jun 13 j 22:43	11° <del>0</del> 34'15	-7°-52'-50
direct	-5123 Aug 19 j 22:59	27° <del>2</del> 43'51		direct	-5115 Sep 02 j 01:26	10° <del>0</del> 24'38	
conjunction	-5123 Nov 28 j 02:36	29° <del>2</del> 44'04	-4°-9'-56	conjunction	-5115 Dec 10 j 12:11	12° <del>0</del> 17'30	-7°-40'-17
minimum elong	-5123 Nov 28 j 02:28	29° <del>2</del> 44'03	4°10'05	minimum elong	-5115 Dec 10 j 11:59	12° <del>0</del> 17'29	7°40'28
max. Earth dist.	-5123 Dec 01 j 08:05	29° <del>2</del> 50'09	36.92058 AU	max. Earth dist.	-5115 Dec 13 j 20:57	12° <del>0</del> 23'30	38.95672 AU
	-5123 Dec 06 j 13:36	0° <del>0</del>		retrograde	-5114 Mar 24 j 17:00	14° <del>0</del> 14'54	
retrograde	-5122 Mar 12 j 09:31	1° <del>0</del> 48'23		min. Earth dist.	-5114 Jun 12 j 08:50	13° <del>0</del> 08'13	37.10343 AU
min. Earth dist.	-5122 May 30 j 15:22	0° <del>0</del> 39'27	35.05489 AU	opposition	-5114 Jun 15 j 17:34	13° <del>0</del> 03'41	-8°-17'-45
opposition	-5122 Jun 02 j 20:34	0° <del>0</del> 34'58	-4°-39'-34	direct	-5114 Sep 03 j 20:57	11° <del>0</del> 54'22	
	-5122 Jun 29 j 00:06	30° <del>0</del> <del>0</del>					
direct	-5122 Aug 21 j 20:41	29° <del>2</del> 23'14		conjunction	-5114 Dec 12 j 05:26	13° <del>0</del> 46'25	-8°-3'-47
	-5122 Oct 12 j 10:36	0° <del>0</del>		minimum elong	-5114 Dec 12 j 05:14	13° <del>0</del> 46'24	8°03'59
				max. Earth dist.	-5114 Dec 15 j 14:12	13° <del>0</del> 52'23	39.21060 AU
conjunction	-5122 Nov 29 j 23:26	1° <del>0</del> 22'29	-4°-38'-22		-5113 Jan 26 j 05:27	15° <del>0</del>	
minimum elong	-5122 Nov 29 j 23:17	1° <del>0</del> 22'28	4°38'30	retrograde	-5113 Mar 26 j 10:34	15° <del>0</del> 43'03	
max. Earth dist.	-5122 Dec 03 j 05:04	1° <del>0</del> 28'33	37.17730 AU		-5113 May 27 j 03:01	15° <del>0</del> <del>0</del>	
retrograde	-5121 Mar 14 j 07:50	3° <del>0</del> 25'54		min. Earth dist.	-5113 Jun 14 j 03:04	14° <del>0</del> 36'38	37.35951 AU
min. Earth dist.	-5121 Jun 01 j 12:30	2° <del>0</del> 17'21	35.31287 AU	opposition	-5113 Jun 17 j 11:58	14° <del>0</del> 32'07	-8°-41'-59
opposition	-5121 Jun 04 j 18:53	2° <del>0</del> 12'49	-5°-9'-10	direct	-5113 Sep 05 j 15:35	13° <del>0</del> 23'06	
direct	-5121 Aug 23 j 18:15	1° <del>0</del> 01'26			-5113 Dec 05 j 17:47	15° <del>0</del>	
conjunction	-5121 Dec 01 j 19:45	2° <del>0</del> 59'44	-5°-6'-11	conjunction	-5113 Dec 13 j 22:28	15° <del>0</del> 14'23	-8°-26'-39
minimum elong	-5121 Dec 01 j 19:35	2° <del>0</del> 59'43	5°06'20	minimum elong	-5113 Dec 13 j 22:14	15° <del>0</del> 14'22	8°26'51
max. Earth dist.	-5121 Dec 05 j 01:36	3° <del>0</del> 05'46	37.43353 AU	max. Earth dist.	-5113 Dec 17 j 08:29	15° <del>0</del> 20'24	39.46463 AU
retrograde	-5120 Mar 15 j 04:02	5° <del>0</del> 02'15		retrograde	-5112 Mar 27 j 01:07	17° <del>0</del> 10'17	
min. Earth dist.	-5120 Jun 02 j 10:42	3° <del>0</del> 53'59	35.57034 AU	min. Earth dist.	-5112 Jun 14 j 21:14	16° <del>0</del> 04'08	37.61535 AU
opposition	-5120 Jun 05 j 16:56	3° <del>0</del> 49'29	-5°-38'-7	opposition	-5112 Jun 18 j 05:58	15° <del>0</del> 59'39	-9°-5'-33
direct	-5120 Aug 24 j 16:50	2° <del>0</del> 38'26			-5112 Aug 11 j 03:41	15° <del>0</del> <del>0</del>	
				direct	-5112 Sep 06 j 11:58	14° <del>0</del> 50'57	
conjunction	-5120 Dec 02 j 15:41	4° <del>0</del> 35'47	-5°-33'-25		-5112 Oct 02 j 06:22	15° <del>0</del>	
minimum elong	-5120 Dec 02 j 15:31	4° <del>0</del> 35'46	5°33'34				
max. Earth dist.	-5120 Dec 05 j 22:29	4° <del>0</del> 41'51	37.68893 AU	conjunction	-5112 Dec 14 j 14:52	16° <del>0</del> 41'29	-8°-48'-55
retrograde	-5119 Mar 16 j 21:26	6° <del>0</del> 37'25		minimum elong	-5112 Dec 14 j 14:39	16° <del>0</del> 41'28	8°49'08
min. Earth dist.	-5119 Jun 04 j 07:53	5° <del>0</del> 29'25	35.82674 AU	max. Earth dist.	-5112 Dec 18 j 00:11	16° <del>0</del> 47'25	39.71819 AU
opposition	-5119 Jun 07 j 14:19	5° <del>0</del> 24'55	-6°-6'-24	retrograde	-5111 Mar 28 j 18:13	18° <del>0</del> 36'40	
direct	-5119 Aug 26 j 17:24	4° <del>0</del> 14'11		min. Earth dist.	-5111 Jun 16 j 13:54	17° <del>0</del> 30'52	37.87060 AU
				opposition	-5111 Jun 19 j 23:36	17° <del>0</del> 26'20	-9°-28'-27
conjunction	-5119 Dec 04 j 11:03	6° <del>0</del> 10'36	-6°00'-2	direct	-5111 Sep 08 j 05:04	16° <del>0</del> 17'57	
minimum elong	-5119 Dec 04 j 10:52	6° <del>0</del> 10'35	6°00'11				
max. Earth dist.	-5119 Dec 07 j 17:12	6° <del>0</del> 16'34	37.94326 AU	conjunction	-5111 Dec 16 j 07:12	18° <del>0</del> 07'46	-9°-10'-34
retrograde	-5118 Mar 18 j 16:49	8° <del>0</del> 11'21		minimum elong	-5111 Dec 16 j 06:58	18° <del>0</del> 07'45	9°10'46
min. Earth dist.	-5118 Jun 06 j 03:58	7° <del>0</del> 03'38	36.08241 AU	max. Earth dist.	-5111 Dec 19 j 17:33	18° <del>0</del> 13'44	39.97074 AU
opposition	-5118 Jun 09 j 11:16	6° <del>0</del> 59'07	-6°-34'-1	retrograde	-5110 Mar 30 j 10:02	20° <del>0</del> 02'17	
direct	-5118 Aug 28 j 14:44	5° <del>0</del> 48'39		min. Earth dist.	-5110 Jun 18 j 08:21	18° <del>0</del> 56'41	38.12453 AU
				opposition	-5110 Jun 21 j 16:54	18° <del>0</del> 52'14	-9°-50'-43
conjunction	-5118 Dec 06 j 06:02	7° <del>0</del> 44'08	-6°-26'-2	direct	-5110 Sep 09 j 22:33	17° <del>0</del> 44'09	
minimum elong	-5118 Dec 06 j 05:51	7° <del>0</del> 44'08	6°26'13				
max. Earth dist.	-5118 Dec 09 j 13:37	7° <del>0</del> 50'11	38.19680 AU	conjunction	-5110 Dec 17 j 23:15	19° <del>0</del> 33'16	-9°-31'-37
retrograde	-5117 Mar 20 j 09:21	9° <del>0</del> 44'01		minimum elong	-5110 Dec 17 j 23:01	19° <del>0</del> 33'15	9°31'51
min. Earth dist.	-5117 Jun 08 j 01:01	8° <del>0</del> 36'31	36.33744 AU	max. Earth dist.	-5110 Dec 21 j 08:53	19° <del>0</del> 39'09	40.22166 AU
opposition	-5117 Jun 11 j 07:39	8° <del>0</del> 32'02	-7°00'-58	retrograde	-5109 Apr 01 j 04:06	21° <del>0</del> 27'06	
direct	-5117 Aug 30 j 12:44	7° <del>0</del> 21'52		min. Earth dist.	-5109 Jun 20 j 00:35	20° <del>0</del> 21'48	38.37636 AU
				opposition	-5109 Jun 23 j 09:43	20° <del>0</del> 17'22	-10°-12'-20
conjunction	-5117 Dec 08 j 00:33	9° <del>0</del> 16'26	-6°-51'-25	direct	-5109 Sep 11 j 13:44	19° <del>0</del> 09'34	
minimum elong	-5117 Dec 08 j 00:21	9° <del>0</del> 16'25	6°51'35				
max. Earth dist.	-5117 Dec 11 j 07:39	9° <del>0</del> 22'24	38.44995 AU	conjunction	-5109 Dec 19 j 15:00	20° <del>0</del> 58'00	-9°-52'-5
retrograde	-5116 Mar 21 j 04:23	11° <del>0</del> 15'28		minimum elong	-5109 Dec 19 j 14:47	20° <del>0</del> 57'59	9°52'18
min. Earth dist.	-5116 Jun 08 j 19:15	10° <del>0</del> 08'16	36.59242 AU	max. Earth dist.	-5109 Dec 23 j 00:26	21° <del>0</del> 03'50	40.46997 AU
opposition	-5116 Jun 12 j 03:17	10° <del>0</del> 03'44	-7°-27'-15	retrograde	-5108 Apr 01 j 21:39	22° <del>0</del> 51'10	



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 19

Attention, astronomical year style is used: The year -5108 in astronomical counting style is the year 5109 BCE in historical counting style.

min. Earth dist.	-5108 Jun 20 j 18:09	21° <del>M</del> 46'04	38.62549 AU	min. Earth dist.	-5100 Jul 01 j 19:08	2° <del>♂</del> 30'09	40.52796 AU
opposition	-5108 Jun 24 j 02:12	21° <del>M</del> 41'42	-10°-33'-21	opposition	-5100 Jul 05 j 00:45	2° <del>♂</del> 26'01	-12°-59'-56
direct	-5108 Sep 12 j 04:09	20° <del>M</del> 34'11		direct	-5100 Sep 23 j 08:46	1° <del>♂</del> 20'18	
conjunction	-5108 Dec 20 j 06:34	22° <del>M</del> 21'57	-10°-11'-59	conjunction	-5100 Dec 30 j 22:20	3° <del>♂</del> 03'04	-12°-30'-59
minimum elong	-5108 Dec 20 j 06:20	22° <del>M</del> 21'56	10°12'13	minimum elong	-5100 Dec 30 j 22:08	3° <del>♂</del> 03'03	12°31'15
max. Earth dist.	-5108 Dec 23 j 16:03	22° <del>M</del> 27'45	40.71543 AU	max. Earth dist.	-5099 Jan 03 j 05:27	3° <del>♂</del> 08'27	42.59298 AU
retrograde	-5107 Apr 03 j 11:18	24° <del>M</del> 14'27		retrograde	-5099 Apr 13 j 22:10	4° <del>♂</del> 50'36	
min. Earth dist.	-5107 Jun 22 j 10:32	23° <del>M</del> 09'34	38.87141 AU	min. Earth dist.	-5099 Jul 03 j 07:58	3° <del>♂</del> 47'16	40.75791 AU
opposition	-5107 Jun 25 j 18:20	23° <del>M</del> 05'14	-10°-53'-46	opposition	-5099 Jul 06 j 14:04	3° <del>♂</del> 43'08	-13°-15'-36
direct	-5107 Sep 13 j 22:39	21° <del>M</del> 57'58		direct	-5099 Sep 24 j 23:00	2° <del>♂</del> 37'39	
conjunction	-5107 Dec 21 j 21:31	23° <del>M</del> 45'03	-10°-31'-19	conjunction	-5098 Jan 01 j 11:04	4° <del>♂</del> 19'52	-12°-45'-53
minimum elong	-5107 Dec 21 j 21:18	23° <del>M</del> 45'02	10°31'32	minimum elong	-5098 Jan 01 j 10:53	4° <del>♂</del> 19'51	12°46'09
max. Earth dist.	-5107 Dec 25 j 05:42	23° <del>M</del> 50'43	40.95766 AU	max. Earth dist.	-5098 Jan 04 j 18:47	4° <del>♂</del> 25'16	42.81974 AU
retrograde	-5106 Apr 05 j 01:23	25° <del>M</del> 36'53		retrograde	-5098 Apr 15 j 10:13	6° <del>♂</del> 06'53	
min. Earth dist.	-5106 Jun 24 j 02:30	24° <del>M</del> 32'13	39.11431 AU	min. Earth dist.	-5098 Jul 04 j 22:45	5° <del>♂</del> 03'41	40.98538 AU
opposition	-5106 Jun 27 j 10:12	24° <del>M</del> 27'53	-11°-13'-35	opposition	-5098 Jul 08 j 03:13	4° <del>♂</del> 59'39	-13°-30'-44
direct	-5106 Sep 15 j 15:42	23° <del>M</del> 20'52		direct	-5098 Sep 26 j 12:55	3° <del>♂</del> 54'24	
conjunction	-5106 Dec 23 j 12:25	25° <del>M</del> 07'17	-10°-50'-6	conjunction	-5097 Jan 02 j 23:46	5° <del>♂</del> 36'05	-13°00'-16
minimum elong	-5106 Dec 23 j 12:11	25° <del>M</del> 07'16	10°50'21	minimum elong	-5097 Jan 02 j 23:34	5° <del>♂</del> 36'04	13°00'32
max. Earth dist.	-5106 Dec 26 j 21:23	25° <del>M</del> 12'58	41.19691 AU	max. Earth dist.	-5097 Jan 06 j 06:34	5° <del>♂</del> 41'24	43.04384 AU
retrograde	-5105 Apr 06 j 13:31	26° <del>M</del> 58'27		retrograde	-5097 Apr 16 j 23:34	7° <del>♂</del> 22'34	
min. Earth dist.	-5105 Jun 25 j 19:05	25° <del>M</del> 53'55	39.35433 AU	min. Earth dist.	-5097 Jul 06 j 11:08	6° <del>♂</del> 19'36	41.20976 AU
opposition	-5105 Jun 29 j 01:28	25° <del>M</del> 49'40	-11°-32'-48	opposition	-5097 Jul 09 j 15:47	6° <del>♂</del> 15'34	-13°-45'-20
direct	-5105 Sep 17 j 09:28	24° <del>M</del> 42'51		direct	-5097 Sep 28 j 00:56	5° <del>♂</del> 10'32	
conjunction	-5105 Dec 25 j 02:50	26° <del>M</del> 28'36	-11°-8'-19	conjunction	-5096 Jan 04 j 12:10	6° <del>♂</del> 51'43	-13°-14'-10
minimum elong	-5105 Dec 25 j 02:37	26° <del>M</del> 28'35	11°08'33	minimum elong	-5096 Jan 04 j 11:59	6° <del>♂</del> 51'42	13°14'26
max. Earth dist.	-5105 Dec 28 j 10:40	26° <del>M</del> 34'11	41.43366 AU	max. Earth dist.	-5096 Jan 07 j 18:01	6° <del>♂</del> 56'56	43.26445 AU
retrograde	-5104 Apr 07 j 03:45	28° <del>M</del> 19'08		retrograde	-5096 Apr 17 j 14:22	8° <del>♂</del> 37'40	
min. Earth dist.	-5104 Jun 26 j 09:11	27° <del>M</del> 14'50	39.59214 AU	min. Earth dist.	-5096 Jul 07 j 01:08	7° <del>♂</del> 34'50	41.43048 AU
opposition	-5104 Jun 29 j 16:23	27° <del>M</del> 10'34	-11°-51'-25	opposition	-5096 Jul 10 j 04:24	7° <del>♂</del> 30'54	-13°-59'-25
direct	-5104 Sep 18 j 00:29	26° <del>M</del> 03'58		direct	-5096 Sep 28 j 11:26	6° <del>♂</del> 26'04	
conjunction	-5104 Dec 25 j 16:47	27° <del>M</del> 49'04	-11°-25'-58	conjunction	-5095 Jan 05 j 00:22	8° <del>♂</del> 06'45	-13°-27'-35
minimum elong	-5104 Dec 25 j 16:33	27° <del>M</del> 49'03	11°26'13	minimum elong	-5095 Jan 05 j 00:11	8° <del>♂</del> 06'44	13°27'50
max. Earth dist.	-5104 Dec 29 j 01:04	27° <del>M</del> 54'38	41.66834 AU	max. Earth dist.	-5095 Jan 08 j 06:07	8° <del>♂</del> 11'55	43.48122 AU
retrograde	-5103 Apr 08 j 18:48	29° <del>M</del> 38'57		retrograde	-5095 Apr 19 j 01:27	9° <del>♂</del> 52'11	
min. Earth dist.	-5103 Jun 28 j 01:00	28° <del>M</del> 34'47	39.82823 AU	min. Earth dist.	-5095 Jul 08 j 14:16	8° <del>♂</del> 49'29	41.64698 AU
opposition	-5103 Jul 01 j 07:06	28° <del>M</del> 30'35	-12°-9'-26	opposition	-5095 Jul 11 j 16:40	8° <del>♂</del> 45'36	-14°-13'00
direct	-5103 Sep 19 j 14:13	27° <del>M</del> 24'12		direct	-5095 Sep 30 j 00:49	7° <del>♂</del> 40'57	
conjunction	-5103 Dec 27 j 06:39	29° <del>M</del> 08'41	-11°-43'-4	conjunction	-5094 Jan 06 j 12:19	9° <del>♂</del> 21'08	-13°-40'-31
minimum elong	-5103 Dec 27 j 06:26	29° <del>M</del> 08'40	11°43'18	minimum elong	-5094 Jan 06 j 12:09	9° <del>♂</del> 21'07	13°40'48
max. Earth dist.	-5103 Dec 30 j 14:52	29° <del>M</del> 14'13	41.90165 AU	max. Earth dist.	-5094 Jan 09 j 16:16	9° <del>♂</del> 26'10	43.69383 AU
retrograde	-5102 Jan 28 j 11:47	0° <del>♂</del>		retrograde	-5094 Apr 20 j 12:36	11° <del>♂</del> 06'03	
retrograde	-5102 Apr 10 j 10:07	0° <del>♂</del> 57'57		min. Earth dist.	-5094 Jul 10 j 02:38	10° <del>♂</del> 03'30	41.85945 AU
min. Earth dist.	-5102 Jun 24 j 21:58	30° <del>♂</del>		opposition	-5094 Jul 13 j 04:40	9° <del>♂</del> 59'39	-14°-26'-6
opposition	-5102 Jun 29 j 14:41	29° <del>M</del> 54'00	40.06288 AU	direct	-5094 Oct 01 j 13:21	8° <del>♂</del> 55'10	
direct	-5102 Jul 02 j 21:15	29° <del>M</del> 49'48	-12°-26'-51	conjunction	-5093 Jan 08 j 00:08	10° <del>♂</del> 34'51	-13°-53'00
	-5102 Sep 21 j 02:54	28° <del>M</del> 43'38		minimum elong	-5093 Jan 07 j 23:57	10° <del>♂</del> 34'50	13°53'16
	-5102 Dec 11 j 23:15	0° <del>♂</del>		max. Earth dist.	-5093 Jan 11 j 04:17	10° <del>♂</del> 39'53	43.90245 AU
conjunction	-5102 Dec 28 j 20:05	0° <del>♂</del> 27'31	-11°-59'-35	retrograde	-5093 Apr 21 j 21:20	12° <del>♂</del> 19'16	
minimum elong	-5102 Dec 28 j 19:52	0° <del>♂</del> 27'30	11°59'50	min. Earth dist.	-5093 Jul 11 j 16:02	11° <del>♂</del> 16'48	42.06800 AU
max. Earth dist.	-5101 Jan 01 j 03:42	0° <del>♂</del> 32'59	42.13354 AU	opposition	-5093 Jul 14 j 16:23	11° <del>♂</del> 13'02	-14°-38'-43
retrograde	-5101 Apr 12 j 00:08	2° <del>♂</del> 16'11		direct	-5093 Oct 03 j 04:03	10° <del>♂</del> 08'43	
min. Earth dist.	-5101 Jul 01 j 05:01	1° <del>♂</del> 12'26	40.29626 AU	conjunction	-5092 Jan 09 j 11:35	11° <del>♂</del> 47'54	-14°-5'-1
opposition	-5101 Jul 04 j 11:16	1° <del>♂</del> 08'16	-12°-43'-41	minimum elong	-5092 Jan 09 j 11:25	11° <del>♂</del> 47'54	14°05'18
direct	-5101 Sep 22 j 16:15	0° <del>♂</del> 02'19		max. Earth dist.	-5092 Jan 12 j 14:23	11° <del>♂</del> 52'50	44.10757 AU
conjunction	-5101 Dec 30 j 09:25	1° <del>♂</del> 45'38	-12°-15'-33	retrograde	-5092 Apr 22 j 08:51	13° <del>♂</del> 31'48	
minimum elong	-5101 Dec 30 j 09:14	1° <del>♂</del> 45'37	12°15'49	min. Earth dist.	-5092 Jul 12 j 02:59	12° <del>♂</del> 29'31	42.27329 AU
max. Earth dist.	-5100 Jan 02 j 17:52	1° <del>♂</del> 51'07	42.36408 AU	opposition	-5092 Jul 15 j 03:37	12° <del>♂</del> 25'45	-14°-50'-50
retrograde	-5100 Apr 12 j 10:03	3° <del>♂</del> 33'43		direct	-5092 Oct 03 j 15:21	11° <del>♂</del> 21'36	



Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 20

Attention, astronomical year style is used: The year -5091 in astronomical counting style is the year 5092 BCE in historical counting style.

conjunction	-5091 Jan 09 j 22:44	13° $\nearrow$ 00'18	-14°-16'-33	retrograde	-5083 May 03 j 05:15	24° $\nearrow$ 02'01	
minimum elong	-5091 Jan 09 j 22:34	13° $\nearrow$ 00'18	14°16'49	min. Earth dist.	-5083 Jul 23 j 06:33	23° $\nearrow$ 00'58	44.00483 AU
max. Earth dist.	-5091 Jan 13 j 01:11	13° $\nearrow$ 05'10	44.30972 AU	opposition	-5083 Jul 25 j 23:40	22° $\nearrow$ 57'41	-16°-18'-21
retrograde	-5091 Apr 23 j 21:06	14° $\nearrow$ 43'43		direct	-5083 Oct 14 j 12:04	21° $\nearrow$ 55'06	
min. Earth dist.	-5091 Jul 13 j 15:33	13° $\nearrow$ 41'31	42.47601 AU				
opposition	-5091 Jul 16 j 14:50	13° $\nearrow$ 37'50	-15°-2'-27	conjunction	-5082 Jan 20 j 19:22	23° $\nearrow$ 30'18	-15°-40'00
direct	-5091 Oct 05 j 01:10	12° $\nearrow$ 33'51		minimum elong	-5082 Jan 20 j 19:15	23° $\nearrow$ 30'18	15°40'17
				max. Earth dist.	-5082 Jan 23 j 14:57	23° $\nearrow$ 34'34	46.01404 AU
conjunction	-5090 Jan 11 j 09:43	14° $\nearrow$ 12'06	-14°-27'-37	retrograde	-5082 May 04 j 13:28	25° $\nearrow$ 09'59	
minimum elong	-5090 Jan 11 j 09:33	14° $\nearrow$ 12'06	14°27'54	min. Earth dist.	-5082 Jul 24 j 16:06	24° $\nearrow$ 09'04	44.17852 AU
max. Earth dist.	-5090 Jan 14 j 12:18	14° $\nearrow$ 16'57	44.50962 AU	opposition	-5082 Jul 27 j 08:55	24° $\nearrow$ 05'48	-16°-25'-56
retrograde	-5090 Apr 25 j 07:44	15° $\nearrow$ 55'03		direct	-5082 Oct 15 j 22:48	23° $\nearrow$ 03'21	
min. Earth dist.	-5090 Jul 15 j 02:29	14° $\nearrow$ 53'00	42.67639 AU				
opposition	-5090 Jul 18 j 01:40	14° $\nearrow$ 49'21	-15°-13'-34	conjunction	-5081 Jan 22 j 05:00	24° $\nearrow$ 38'10	-15°-47'-14
direct	-5090 Oct 06 j 12:22	13° $\nearrow$ 45'31		minimum elong	-5081 Jan 22 j 04:56	24° $\nearrow$ 38'10	15°47'32
				max. Earth dist.	-5081 Jan 25 j 00:03	24° $\nearrow$ 42'23	46.18413 AU
conjunction	-5089 Jan 12 j 20:28	15° $\nearrow$ 23'21	-14°-38'-12	retrograde	-5081 May 05 j 21:36	26° $\nearrow$ 17'27	
minimum elong	-5089 Jan 12 j 20:19	15° $\nearrow$ 23'21	14°38'28	min. Earth dist.	-5081 Jul 26 j 03:20	25° $\nearrow$ 16'33	44.34758 AU
max. Earth dist.	-5089 Jan 15 j 21:37	15° $\nearrow$ 28'05	44.70737 AU	opposition	-5081 Jul 28 j 17:54	25° $\nearrow$ 13'24	-16°-33'-8
retrograde	-5089 Apr 26 j 18:40	17° $\nearrow$ 05'50		direct	-5081 Oct 17 j 09:29	24° $\nearrow$ 11'04	
min. Earth dist.	-5089 Jul 16 j 13:17	16° $\nearrow$ 03'58	42.87480 AU				
opposition	-5089 Jul 19 j 12:12	16° $\nearrow$ 00'19	-15°-24'-12	conjunction	-5080 Jan 23 j 14:25	25° $\nearrow$ 45'31	-15°-54'-6
direct	-5089 Oct 07 j 22:32	14° $\nearrow$ 56'41		minimum elong	-5080 Jan 23 j 14:20	25° $\nearrow$ 45'30	15°54'23
				max. Earth dist.	-5080 Jan 26 j 08:31	25° $\nearrow$ 49'39	46.35003 AU
conjunction	-5088 Jan 14 j 07:07	16° $\nearrow$ 34'06	-14°-48'-19	retrograde	-5080 May 06 j 06:57	27° $\nearrow$ 24'23	
minimum elong	-5088 Jan 14 j 06:58	16° $\nearrow$ 34'06	14°48'36	min. Earth dist.	-5080 Jul 26 j 12:12	26° $\nearrow$ 23'36	44.51257 AU
max. Earth dist.	-5088 Jan 17 j 08:53	16° $\nearrow$ 38'52	44.90312 AU	opposition	-5080 Jul 29 j 02:39	26° $\nearrow$ 20'28	-16°-39'-56
retrograde	-5088 Apr 27 j 02:52	18° $\nearrow$ 16'10		direct	-5080 Oct 17 j 18:25	25° $\nearrow$ 18'14	
min. Earth dist.	-5088 Jul 17 j 01:01	17° $\nearrow$ 14'25	43.07099 AU				
opposition	-5088 Jul 19 j 22:38	17° $\nearrow$ 10'51	-15°-34'-21	conjunction	-5079 Jan 23 j 23:21	26° $\nearrow$ 52'19	-16°00'-34
direct	-5088 Oct 08 j 10:48	16° $\nearrow$ 07'24		minimum elong	-5079 Jan 23 j 23:17	26° $\nearrow$ 52'19	16°00'53
				max. Earth dist.	-5079 Jan 26 j 16:01	26° $\nearrow$ 56'21	46.51214 AU
conjunction	-5087 Jan 14 j 17:19	17° $\nearrow$ 44'25	-14°-57'-59	retrograde	-5079 May 07 j 18:30	28° $\nearrow$ 30'48	
minimum elong	-5087 Jan 14 j 17:12	17° $\nearrow$ 44'25	14°58'16	min. Earth dist.	-5079 Jul 27 j 22:05	27° $\nearrow$ 30'04	44.67421 AU
max. Earth dist.	-5087 Jan 17 j 17:50	17° $\nearrow$ 49'05	45.09674 AU	opposition	-5079 Jul 30 j 11:22	27° $\nearrow$ 27'00	-16°-46'-19
retrograde	-5087 Apr 28 j 12:05	19° $\nearrow$ 26'04		direct	-5079 Oct 19 j 00:35	26° $\nearrow$ 24'53	
min. Earth dist.	-5087 Jul 18 j 10:46	18° $\nearrow$ 24'33	43.26483 AU				
opposition	-5087 Jul 21 j 08:50	18° $\nearrow$ 20'58	-15°-44'-1	conjunction	-5078 Jan 25 j 08:27	27° $\nearrow$ 58'37	-16°-6'-40
direct	-5087 Oct 09 j 22:09	17° $\nearrow$ 17'42		minimum elong	-5078 Jan 25 j 08:23	27° $\nearrow$ 58'37	16°06'57
				max. Earth dist.	-5078 Jan 28 j 01:21	28° $\nearrow$ 02'39	46.67120 AU
conjunction	-5086 Jan 16 j 03:33	18° $\nearrow$ 54'21	-15°-7'-12	retrograde	-5078 May 09 j 02:01	29° $\nearrow$ 36'44	
minimum elong	-5086 Jan 16 j 03:25	18° $\nearrow$ 54'20	15°07'30	min. Earth dist.	-5078 Jul 29 j 07:28	28° $\nearrow$ 36'04	44.83277 AU
max. Earth dist.	-5086 Jan 19 j 03:48	18° $\nearrow$ 58'58	45.28771 AU	opposition	-5078 Jul 31 j 19:41	28° $\nearrow$ 33'04	-16°-52'-18
retrograde	-5086 Apr 29 j 23:48	20° $\nearrow$ 35'37		direct	-5078 Oct 20 j 10:07	27° $\nearrow$ 31'03	
min. Earth dist.	-5086 Jul 19 j 22:33	19° $\nearrow$ 34'11	43.45580 AU				
opposition	-5086 Jul 22 j 18:52	19° $\nearrow$ 30'43	-15°-53'-14	conjunction	-5077 Jan 26 j 17:17	29° $\nearrow$ 04'27	-16°-12'-21
direct	-5086 Oct 11 j 07:26	18° $\nearrow$ 27'39		minimum elong	-5077 Jan 26 j 17:14	29° $\nearrow$ 04'27	16°12'40
				max. Earth dist.	-5077 Jan 29 j 08:27	29° $\nearrow$ 08'22	46.82748 AU
conjunction	-5085 Jan 17 j 13:47	20° $\nearrow$ 03'55	-15°-16'00		-5077 Mar 07 j 12:45	0° $\nearrow$	
minimum elong	-5085 Jan 17 j 13:41	20° $\nearrow$ 03'55	15°16'18	retrograde	-5077 May 10 j 09:04	0° $\nearrow$ 42'12	
max. Earth dist.	-5085 Jan 20 j 13:25	20° $\nearrow$ 08'29	45.47563 AU		-5077 Jul 15 j 00:01	30° $\nearrow$	
retrograde	-5085 May 01 j 11:30	21° $\nearrow$ 44'47		min. Earth dist.	-5077 Jul 30 j 15:45	29° $\nearrow$ 41'41	44.98869 AU
min. Earth dist.	-5085 Jul 21 j 08:39	20° $\nearrow$ 43'32	43.64314 AU	opposition	-5077 Aug 02 j 03:57	29° $\nearrow$ 38'40	-16°-57'-53
opposition	-5085 Jul 24 j 04:34	20° $\nearrow$ 40'06	-16°-2'-1	direct	-5077 Oct 21 j 19:21	28° $\nearrow$ 36'47	
direct	-5085 Oct 12 j 15:17	19° $\nearrow$ 37'12			-5076 Jan 21 j 09:10	0° $\nearrow$	
conjunction	-5084 Jan 18 j 23:42	21° $\nearrow$ 13'07	-15°-24'-23	conjunction	-5076 Jan 28 j 01:56	0° $\nearrow$ 09'53	-16°-17'-40
minimum elong	-5084 Jan 18 j 23:34	21° $\nearrow$ 13'07	15°24'41	minimum elong	-5076 Jan 28 j 01:53	0° $\nearrow$ 09'53	16°17'57
max. Earth dist.	-5084 Jan 21 j 21:35	21° $\nearrow$ 17'33	45.65957 AU	max. Earth dist.	-5076 Jan 30 j 17:04	0° $\nearrow$ 13'47	46.98107 AU
retrograde	-5084 May 01 j 22:25	22° $\nearrow$ 53'36		retrograde	-5076 May 10 j 15:32	1° $\nearrow$ 47'18	
min. Earth dist.	-5084 Jul 21 j 19:31	21° $\nearrow$ 52'28	43.82636 AU	min. Earth dist.	-5076 Jul 31 j 01:31	0° $\nearrow$ 46'50	45.14184 AU
opposition	-5084 Jul 24 j 14:12	21° $\nearrow$ 49'06	-16°-10'-23	opposition	-5076 Aug 02 j 12:04	0° $\nearrow$ 43'55	-17°-3'-5
direct	-5084 Oct 13 j 00:03	20° $\nearrow$ 46'23			-5076 Sep 12 j 06:30	30° $\nearrow$	
				direct	-5076 Oct 22 j 05:47	29° $\nearrow$ 42'11	
conjunction	-5083 Jan 19 j 09:42	22° $\nearrow$ 21'56	-15°-32'-23		-5076 Nov 30 j 10:48	0° $\nearrow$	
minimum elong	-5083 Jan 19 j 09:36	22° $\nearrow$ 21'56	15°32'41				
max. Earth dist.	-5083 Jan 22 j 07:32	22° $\nearrow$ 26'21	45.83915 AU	conjunction	-5075 Jan 28 j 10:30	1° $\nearrow$ 14'59	-16°-22'-36



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 21

Attention, astronomical year style is used: The year -5075 in astronomical counting style is the year 5076 BCE in historical counting style.

minimum elong	-5075 Jan 28 j 10:28	1°☾14'59	16°22'54	min. Earth dist.	-5067 Aug 10 j 05:42	10°☾21'18	46.33860 AU
max. Earth dist.	-5075 Jan 31 j 00:42	1°☾18'48	47.13211 AU	opposition	-5067 Aug 12 j 06:28	10°☾18'55	-17°-33'-54
retrograde	-5075 May 12 j 00:33	2°☾52'05		direct	-5067 Oct 31 j 23:34	9°☾18'10	
min. Earth dist.	-5075 Aug 01 j 09:21	1°☾51'47	45.29216 AU				
opposition	-5075 Aug 03 j 19:57	1°☾48'52	-17°-7'-52	conjunction	-5066 Feb 07 j 11:03	10°☾48'42	-16°-51'-49
direct	-5075 Oct 23 j 13:25	0°☾47'15		minimum elong	-5066 Feb 07 j 11:05	10°☾48'43	16°52'07
				max. Earth dist.	-5066 Feb 09 j 14:54	10°☾51'49	48.30435 AU
conjunction	-5074 Jan 29 j 18:51	2°☾19'48	-16°-27'-9	retrograde	-5066 May 21 j 20:05	12°☾23'11	
minimum elong	-5074 Jan 29 j 18:50	2°☾19'48	16°27'27	min. Earth dist.	-5066 Aug 11 j 14:10	11°☾23'27	46.44984 AU
max. Earth dist.	-5074 Feb 01 j 07:45	2°☾23'31	47.28007 AU	opposition	-5066 Aug 13 j 13:09	11°☾21'09	-17°-35'-40
retrograde	-5074 May 13 j 10:48	3°☾56'36		direct	-5066 Nov 02 j 10:04	10°☾20'29	
min. Earth dist.	-5074 Aug 02 j 18:48	2°☾56'23	45.43923 AU				
opposition	-5074 Aug 05 j 03:51	2°☾53'33	-17°-12'-17	conjunction	-5065 Feb 08 j 18:33	11°☾50'47	-16°-53'-27
direct	-5074 Oct 24 j 19:21	1°☾52'06		minimum elong	-5065 Feb 08 j 18:34	11°☾50'47	16°53'44
				max. Earth dist.	-5065 Feb 10 j 21:00	11°☾53'48	48.41385 AU
conjunction	-5073 Jan 31 j 03:23	3°☾24'23	-16°-31'-21	retrograde	-5065 May 23 j 01:44	13°☾25'00	
minimum elong	-5073 Jan 31 j 03:21	3°☾24'22	16°31'39	min. Earth dist.	-5065 Aug 12 j 20:23	12°☾25'22	46.55811 AU
max. Earth dist.	-5073 Feb 02 j 16:09	3°☾28'05	47.42453 AU	opposition	-5065 Aug 14 j 19:28	12°☾23'04	-17°-37'-6
retrograde	-5073 May 14 j 18:32	5°☾00'53		direct	-5065 Nov 03 j 18:16	11°☾22'28	
min. Earth dist.	-5073 Aug 04 j 03:32	4°☾00'46	45.58228 AU				
opposition	-5073 Aug 06 j 11:21	3°☾58'01	-17°-16'-21	conjunction	-5064 Feb 10 j 01:48	12°☾52'33	-16°-54'-46
direct	-5073 Oct 26 j 03:20	2°☾56'42		minimum elong	-5064 Feb 10 j 01:51	12°☾52'34	16°55'04
				max. Earth dist.	-5064 Feb 12 j 03:10	12°☾55'30	48.52047 AU
conjunction	-5072 Feb 01 j 11:40	4°☾28'45	-16°-35'-13	retrograde	-5064 May 23 j 10:09	14°☾26'31	
minimum elong	-5072 Feb 01 j 11:40	4°☾28'45	16°35'31	min. Earth dist.	-5064 Aug 13 j 04:33	13°☾26'54	46.66364 AU
max. Earth dist.	-5072 Feb 03 j 22:05	4°☾32'18	47.56477 AU	opposition	-5064 Aug 15 j 01:59	13°☾24'41	-17°-38'-11
retrograde	-5072 May 15 j 02:33	6°☾04'57		direct	-5064 Nov 03 j 23:56	12°☾24'11	
min. Earth dist.	-5072 Aug 04 j 11:45	5°☾04'58	45.72086 AU				
opposition	-5072 Aug 06 j 18:55	5°☾02'15	-17°-20'-4	conjunction	-5063 Feb 10 j 08:57	13°☾54'04	-16°-55'-44
direct	-5072 Oct 26 j 11:04	4°☾01'04		minimum elong	-5063 Feb 10 j 09:01	13°☾54'04	16°56'01
				max. Earth dist.	-5063 Feb 12 j 10:18	13°☾56'59	48.62445 AU
conjunction	-5071 Feb 01 j 19:49	5°☾32'52	-16°-38'-46	retrograde	-5063 May 24 j 17:54	15°☾27'47	
minimum elong	-5071 Feb 01 j 19:47	5°☾32'52	16°39'03	min. Earth dist.	-5063 Aug 14 j 11:20	14°☾28'16	46.76622 AU
max. Earth dist.	-5071 Feb 04 j 05:44	5°☾36'23	47.70015 AU	opposition	-5063 Aug 16 j 08:15	14°☾26'04	-17°-38'-56
retrograde	-5071 May 16 j 08:21	7°☾08'49		direct	-5063 Nov 05 j 05:41	13°☾25'39	
min. Earth dist.	-5071 Aug 05 j 21:39	6°☾08'51	45.85428 AU				
opposition	-5071 Aug 08 j 02:28	6°☾06'15	-17°-23'-29	conjunction	-5062 Feb 11 j 16:04	14°☾55'21	-16°-56'-24
direct	-5071 Oct 27 j 20:36	5°☾05'11		minimum elong	-5062 Feb 11 j 16:07	14°☾55'21	16°56'41
				max. Earth dist.	-5062 Feb 13 j 15:19	14°☾58'09	48.72545 AU
conjunction	-5070 Feb 03 j 04:02	6°☾36'44	-16°-42'00	retrograde	-5062 May 26 j 02:34	16°☾28'50	
minimum elong	-5070 Feb 03 j 04:03	6°☾36'44	16°42'17	min. Earth dist.	-5062 Aug 15 j 18:16	15°☾29'23	46.86570 AU
max. Earth dist.	-5070 Feb 05 j 12:17	6°☾40'08	47.83045 AU	opposition	-5062 Aug 17 j 14:22	15°☾27'15	-17°-39'-22
retrograde	-5070 May 17 j 15:34	8°☾12'24		direct	-5062 Nov 06 j 09:53	14°☾26'55	
min. Earth dist.	-5070 Aug 07 j 05:13	7°☾12'32	45.98241 AU				
opposition	-5070 Aug 09 j 09:37	7°☾09'57	-17°-26'-34	conjunction	-5061 Feb 12 j 23:17	15°☾56'27	-16°-56'-44
direct	-5070 Oct 29 j 05:12	6°☾08'59		minimum elong	-5061 Feb 12 j 23:22	15°☾56'27	16°57'02
				max. Earth dist.	-5061 Feb 14 j 22:22	15°☾59'14	48.82300 AU
conjunction	-5069 Feb 04 j 12:02	7°☾40'17	-16°-44'-55	retrograde	-5061 May 27 j 07:50	17°☾29'43	
minimum elong	-5069 Feb 04 j 12:01	7°☾40'17	16°45'13	min. Earth dist.	-5061 Aug 17 j 02:24	16°☾30'17	46.96131 AU
max. Earth dist.	-5069 Feb 06 j 18:24	7°☾43'34	47.95546 AU	opposition	-5061 Aug 18 j 20:31	16°☾28'15	-17°-39'-29
retrograde	-5069 May 19 j 02:10	9°☾15'39		direct	-5061 Nov 07 j 17:21	15°☾28'01	
min. Earth dist.	-5069 Aug 08 j 14:25	8°☾15'48	46.10549 AU				
opposition	-5069 Aug 10 j 16:51	8°☾13'19	-17°-29'-20	conjunction	-5060 Feb 14 j 06:17	16°☾57'22	-16°-56'-48
direct	-5069 Oct 30 j 10:19	7°☾12'26		minimum elong	-5060 Feb 14 j 06:20	16°☾57'23	16°57'05
				max. Earth dist.	-5060 Feb 16 j 03:38	17°☾00'03	48.91655 AU
conjunction	-5068 Feb 05 j 19:53	8°☾43'28	-16°-47'-33	retrograde	-5060 May 27 j 12:08	18°☾30'26	
minimum elong	-5068 Feb 05 j 19:54	8°☾43'28	16°47'51	min. Earth dist.	-5060 Aug 17 j 08:41	17°☾31'06	47.05254 AU
max. Earth dist.	-5068 Feb 08 j 01:55	8°☾46'43	48.07572 AU	opposition	-5060 Aug 19 j 02:27	17°☾29'05	-17°-39'-18
retrograde	-5068 May 19 j 09:49	10°☾18'32		direct	-5060 Nov 08 j 01:41	16°☾28'56	
min. Earth dist.	-5068 Aug 08 j 22:19	9°☾18'44	46.22391 AU				
opposition	-5068 Aug 10 j 23:42	9°☾16'18	-17°-31'-47	conjunction	-5059 Feb 14 j 13:18	17°☾58'07	-16°-56'-34
direct	-5068 Oct 30 j 16:44	8°☾15'30		minimum elong	-5059 Feb 14 j 13:23	17°☾58'08	16°56'51
				max. Earth dist.	-5059 Feb 16 j 08:58	18°☾00'42	49.00534 AU
conjunction	-5067 Feb 06 j 03:28	9°☾46'17	-16°-49'-50	retrograde	-5059 May 28 j 19:38	19°☾30'59	
minimum elong	-5067 Feb 06 j 03:28	9°☾46'17	16°50'08	min. Earth dist.	-5059 Aug 18 j 16:55	18°☾31'39	47.13883 AU
max. Earth dist.	-5067 Feb 08 j 07:23	9°☾49'23	48.19182 AU	opposition	-5059 Aug 20 j 08:28	18°☾29'44	-17°-38'-51
retrograde	-5067 May 20 j 16:53	11°☾21'03		direct	-5059 Nov 09 j 07:55	17°☾29'40	



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 22

Attention, astronomical year style is used: The year -5058 in astronomical counting style is the year 5059 BCE in historical counting style.

conjunction	-5058 Feb 15 j 20:24	18° $\overline{58}$ '41	-16°-56'-4	retrograde	-5050 Jun 07 j 00:58	28° $\overline{25}$ '50	
minimum elong	-5058 Feb 15 j 20:28	18° $\overline{58}$ '41	16°56'21	min. Earth dist.	-5050 Aug 28 j 03:03	27° $\overline{26}$ '46	47.72216 AU
max. Earth dist.	-5058 Feb 17 j 15:15	19° $\overline{20}$ '11	49.08912 AU	opposition	-5050 Aug 29 j 09:18	27° $\overline{25}$ '19	-17°-21'-59
retrograde	-5058 May 30 j 03:05	20° $\overline{31}$ '19		direct	-5050 Nov 18 j 12:06	26° $\overline{25}$ '44	
min. Earth dist.	-5058 Aug 19 j 23:49	19° $\overline{32}$ '01	47.21975 AU				
opposition	-5058 Aug 21 j 14:19	19° $\overline{30}$ '10	-17°-38'-7	conjunction	-5049 Feb 25 j 07:02	27° $\overline{53}$ '32	-16°-39'-7
direct	-5058 Nov 10 j 13:09	18° $\overline{30}$ '09		minimum elong	-5049 Feb 25 j 07:09	27° $\overline{53}$ '33	16°39'24
				max. Earth dist.	-5049 Feb 26 j 14:37	27° $\overline{55}$ '22	49.65884 AU
conjunction	-5057 Feb 17 j 03:17	19° $\overline{58}$ '59	-16°-55'-19	retrograde	-5049 Jun 08 j 06:20	29° $\overline{24}$ '36	
minimum elong	-5057 Feb 17 j 03:23	19° $\overline{59}$ '00	16°55'36	min. Earth dist.	-5049 Aug 29 j 10:19	28° $\overline{25}$ '32	47.76993 AU
max. Earth dist.	-5057 Feb 18 j 19:35	20° $\overline{20}$ '21	49.16763 AU	opposition	-5049 Aug 30 j 14:22	28° $\overline{24}$ '11	-17°-18'-40
retrograde	-5057 May 31 j 10:54	21° $\overline{31}$ '24		direct	-5049 Nov 19 j 18:47	27° $\overline{24}$ '41	
min. Earth dist.	-5057 Aug 21 j 06:46	20° $\overline{32}$ '07	47.29562 AU				
opposition	-5057 Aug 22 j 20:00	20° $\overline{30}$ '19	-17°-37'-7	conjunction	-5048 Feb 26 j 13:26	28° $\overline{52}$ '25	-16°-35'-50
direct	-5057 Nov 11 j 17:45	19° $\overline{30}$ '21		minimum elong	-5048 Feb 26 j 13:35	28° $\overline{52}$ '25	16°36'06
				max. Earth dist.	-5048 Feb 27 j 20:24	28° $\overline{54}$ '12	49.70510 AU
conjunction	-5056 Feb 18 j 10:07	20° $\overline{59}$ '02	-16°-54'-17		-5048 Apr 21 j 14:39	0° $\approx$	
minimum elong	-5056 Feb 18 j 10:11	20° $\overline{59}$ '02	16°54'34	retrograde	-5048 Jun 08 j 13:52	0° $\approx$ 23'21	
max. Earth dist.	-5056 Feb 20 j 01:56	21° $\overline{20}$ '21	49.24126 AU		-5048 Jul 27 j 01:10	30° $\overline{R}$ $\overline{2}$	
retrograde	-5056 May 31 j 14:25	22° $\overline{31}$ '14		opposition	-5048 Aug 30 j 19:20	29° $\overline{23}$ '03	-17°-15'-4
min. Earth dist.	-5056 Aug 21 j 14:18	21° $\overline{31}$ '55	47.36679 AU	min. Earth dist.	-5048 Aug 29 j 16:05	29° $\overline{24}$ '21	47.81323 AU
opposition	-5056 Aug 23 j 01:40	21° $\overline{30}$ '13	-17°-35'-51	direct	-5048 Nov 19 j 22:47	28° $\overline{23}$ '35	
direct	-5056 Nov 12 j 01:58	20° $\overline{30}$ '17					
				conjunction	-5047 Feb 26 j 19:35	29° $\overline{51}$ '15	-16°-32'-17
conjunction	-5055 Feb 18 j 16:37	21° $\overline{58}$ '48	-16°-52'-59	minimum elong	-5047 Feb 26 j 19:43	29° $\overline{51}$ '15	16°32'33
minimum elong	-5055 Feb 18 j 16:44	21° $\overline{58}$ '48	16°53'16	max. Earth dist.	-5047 Feb 27 j 23:59	29° $\overline{52}$ '53	49.74658 AU
max. Earth dist.	-5055 Feb 20 j 06:48	22° $\overline{20}$ '01	49.31068 AU		-5047 Mar 05 j 03:54	0° $\approx$	
retrograde	-5055 Jun 01 j 18:43	23° $\overline{30}$ '47		retrograde	-5047 Jun 09 j 22:21	1° $\approx$ 22'05	
min. Earth dist.	-5055 Aug 22 j 19:58	22° $\overline{31}$ '32	47.43397 AU	min. Earth dist.	-5047 Aug 30 j 22:44	0° $\approx$ 23'04	47.85154 AU
opposition	-5055 Aug 24 j 07:07	22° $\overline{29}$ '50	-17°-34'-17	opposition	-5047 Sep 01 j 00:26	0° $\approx$ 21'50	-17°-11'-14
direct	-5055 Nov 13 j 09:28	21° $\overline{29}$ '57			-5047 Sep 20 j 11:32	30° $\overline{R}$ $\overline{2}$	
				direct	-5047 Nov 21 j 01:23	29° $\overline{22}$ '26	
conjunction	-5054 Feb 19 j 23:12	22° $\overline{58}$ '18	-16°-51'-24		-5046 Jan 20 j 13:24	0° $\approx$	
minimum elong	-5054 Feb 19 j 23:17	22° $\overline{58}$ '18	16°51'40	conjunction	-5046 Feb 28 j 02:04	0° $\approx$ 50'01	-16°-28'-31
max. Earth dist.	-5054 Feb 21 j 12:07	23° $\overline{20}$ '27	49.37627 AU	minimum elong	-5046 Feb 28 j 02:14	0° $\approx$ 50'01	16°28'46
retrograde	-5054 Jun 03 j 01:14	24° $\overline{30}$ '07		max. Earth dist.	-5046 Mar 01 j 05:43	0° $\approx$ 51'36	49.78278 AU
min. Earth dist.	-5054 Aug 24 j 03:22	23° $\overline{30}$ '50	47.49765 AU	retrograde	-5046 Jun 11 j 02:49	2° $\approx$ 20'42	
opposition	-5054 Aug 25 j 12:31	23° $\overline{29}$ '14	-17°-32'-26	min. Earth dist.	-5046 Sep 01 j 05:41	1° $\approx$ 21'39	47.88429 AU
direct	-5054 Nov 14 j 15:23	22° $\overline{29}$ '23		opposition	-5046 Sep 02 j 05:21	1° $\approx$ 20'31	-17°-7'-9
				direct	-5046 Nov 22 j 07:50	0° $\approx$ 21'08	
conjunction	-5053 Feb 21 j 05:48	23° $\overline{57}$ '36	-16°-49'-32				
minimum elong	-5053 Feb 21 j 05:54	23° $\overline{57}$ '36	16°49'49	conjunction	-5045 Mar 01 j 08:24	1° $\approx$ 48'38	-16°-24'-30
max. Earth dist.	-5053 Feb 22 j 18:24	23° $\overline{59}$ '43	49.43871 AU	minimum elong	-5045 Mar 01 j 08:32	1° $\approx$ 48'39	16°24'45
retrograde	-5053 Jun 04 j 07:39	25° $\overline{29}$ '13		max. Earth dist.	-5045 Mar 02 j 09:46	1° $\approx$ 50'06	49.81361 AU
min. Earth dist.	-5053 Aug 25 j 09:00	24° $\overline{30}$ '00	47.55816 AU	retrograde	-5045 Jun 12 j 06:24	3° $\approx$ 19'10	
opposition	-5053 Aug 26 j 17:46	24° $\overline{28}$ '25	-17°-30'-16	min. Earth dist.	-5045 Sep 02 j 11:11	2° $\approx$ 20'09	47.91172 AU
direct	-5053 Nov 15 j 20:39	23° $\overline{28}$ '38		opposition	-5045 Sep 03 j 10:13	2° $\approx$ 19'03	-17°-2'-50
				direct	-5045 Nov 23 j 15:01	1° $\approx$ 19'40	
conjunction	-5052 Feb 22 j 11:59	24° $\overline{56}$ '43	-16°-47'-22				
minimum elong	-5052 Feb 22 j 12:06	24° $\overline{56}$ '44	16°47'38	conjunction	-5044 Mar 01 j 14:27	2° $\approx$ 47'05	-16°-20'-15
max. Earth dist.	-5052 Feb 23 j 22:32	24° $\overline{58}$ '43	49.49817 AU	minimum elong	-5044 Mar 01 j 14:37	2° $\approx$ 47'05	16°20'31
retrograde	-5052 Jun 04 j 16:13	26° $\overline{28}$ '11		max. Earth dist.	-5044 Mar 02 j 14:19	2° $\approx$ 48'27	49.83916 AU
opposition	-5052 Aug 26 j 23:03	25° $\overline{27}$ '28	-17°-27'-48	retrograde	-5044 Jun 12 j 10:39	4° $\approx$ 17'29	
min. Earth dist.	-5052 Aug 25 j 15:05	25° $\overline{29}$ '00	47.61587 AU	opposition	-5044 Sep 03 j 15:09	3° $\approx$ 17'23	-16°-58'-16
direct	-5052 Nov 15 j 23:07	24° $\overline{27}$ '44		min. Earth dist.	-5044 Sep 02 j 18:26	3° $\approx$ 18'22	47.93416 AU
				direct	-5044 Nov 23 j 21:48	2° $\approx$ 18'00	
conjunction	-5051 Feb 22 j 18:24	25° $\overline{55}$ '44	-16°-44'-54				
minimum elong	-5051 Feb 22 j 18:31	25° $\overline{55}$ '44	16°45'11	conjunction	-5043 Mar 02 j 20:39	3° $\approx$ 45'19	-16°-15'-46
max. Earth dist.	-5051 Feb 24 j 05:00	25° $\overline{57}$ '44	49.55484 AU	minimum elong	-5043 Mar 02 j 20:48	3° $\approx$ 45'19	16°16'01
retrograde	-5051 Jun 05 j 21:27	27° $\overline{27}$ '02		max. Earth dist.	-5043 Mar 03 j 19:45	3° $\approx$ 46'38	49.86016 AU
min. Earth dist.	-5051 Aug 26 j 21:53	26° $\overline{27}$ '52	47.67060 AU	retrograde	-5043 Jun 13 j 15:29	5° $\approx$ 15'35	
opposition	-5051 Aug 28 j 04:14	26° $\overline{26}$ '25	-17°-25'-3	opposition	-5043 Sep 04 j 19:46	4° $\approx$ 15'30	-16°-53'-27
direct	-5051 Nov 17 j 05:02	25° $\overline{26}$ '46		min. Earth dist.	-5043 Sep 03 j 23:36	4° $\approx$ 16'28	47.95218 AU
				direct	-5043 Nov 25 j 03:49	3° $\approx$ 16'07	
conjunction	-5050 Feb 24 j 00:42	26° $\overline{54}$ '39	-16°-42'-9				
minimum elong	-5050 Feb 24 j 00:50	26° $\overline{54}$ '40	16°42'25	conjunction	-5042 Mar 04 j 02:40	4° $\approx$ 43'20	-16°-11'-1
max. Earth dist.	-5050 Feb 25 j 09:41	26° $\overline{56}$ '34	49.60863 AU				



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 23

Attention, astronomical year style is used: The year -5042 in astronomical counting style is the year 5043 BCE in historical counting style.

minimum elong	-5042 Mar 04 j 02:50	4°≈43'20	16°11'17	opposition	-5034 Sep 13 j 12:53	12°≈54'28	-15°-58'-3
max. Earth dist.	-5042 Mar 04 j 23:27	4°≈44'31	49.87703 AU	min. Earth dist.	-5034 Sep 13 j 04:28	12°≈54'52	47.95215 AU
retrograde	-5042 Jun 15 j 00:02	6°≈13'28		direct	-5034 Dec 03 j 23:34	11°≈55'12	
min. Earth dist.	-5042 Sep 05 j 05:39	5°≈14'19	47.96641 AU				
opposition	-5042 Sep 06 j 00:29	5°≈13'25	-16°-48'-21	conjunction	-5033 Mar 13 j 08:32	13°≈22'16	-15°-16'-38
direct	-5042 Nov 26 j 06:06	4°≈14'01		minimum elong	-5033 Mar 13 j 08:44	13°≈22'16	15°16'52
				max. Earth dist.	-5033 Mar 13 j 18:04	13°≈22'48	49.86783 AU
conjunction	-5041 Mar 05 j 08:46	5°≈41'10	-16°-6'00	retrograde	-5033 Jun 23 j 21:09	14°≈51'50	
minimum elong	-5041 Mar 05 j 08:55	5°≈41'11	16°06'15	opposition	-5033 Sep 14 j 17:15	13°≈52'09	-15°-50'-40
max. Earth dist.	-5041 Mar 06 j 05:23	5°≈42'21	49.89025 AU	min. Earth dist.	-5033 Sep 14 j 09:31	13°≈52'32	47.92944 AU
retrograde	-5041 Jun 16 j 05:31	7°≈11'10		direct	-5033 Dec 05 j 05:27	12°≈52'52	
min. Earth dist.	-5041 Sep 06 j 11:45	6°≈11'58	47.97710 AU				
opposition	-5041 Sep 07 j 05:05	6°≈11'09	-16°-43'00	conjunction	-5032 Mar 13 j 14:27	14°≈19'56	-15°-9'-24
direct	-5041 Nov 27 j 10:58	5°≈11'45		minimum elong	-5032 Mar 13 j 14:38	14°≈19'56	15°09'38
				max. Earth dist.	-5032 Mar 13 j 21:21	14°≈20'19	49.84382 AU
conjunction	-5040 Mar 05 j 14:40	6°≈38'51	-16°00'-44		-5032 Apr 13 j 01:13	15°≈	
minimum elong	-5040 Mar 05 j 14:50	6°≈38'51	16°00'59	retrograde	-5032 Jun 24 j 05:33	15°≈49'27	
max. Earth dist.	-5040 Mar 06 j 09:36	6°≈39'56	49.90037 AU		-5032 Sep 05 j 21:54	15°≈	
retrograde	-5040 Jun 16 j 09:39	8°≈08'45		opposition	-5032 Sep 14 j 21:43	14°≈49'47	-15°-43'-2
opposition	-5040 Sep 07 j 09:38	7°≈08'46	-16°-37'-22	min. Earth dist.	-5032 Sep 14 j 15:40	14°≈50'04	47.90191 AU
min. Earth dist.	-5040 Sep 06 j 16:22	7°≈09'35	47.98478 AU	direct	-5032 Dec 05 j 07:29	13°≈50'28	
direct	-5040 Nov 27 j 16:16	6°≈09'23			-5031 Mar 01 j 21:30	15°≈	
conjunction	-5039 Mar 06 j 20:27	7°≈36'26	-15°-55'-11	conjunction	-5031 Mar 14 j 20:23	15°≈17'32	-15°-1'-56
minimum elong	-5039 Mar 06 j 20:38	7°≈36'26	15°55'25	minimum elong	-5031 Mar 14 j 20:36	15°≈17'33	15°02'10
max. Earth dist.	-5039 Mar 07 j 14:13	7°≈37'26	49.90740 AU	max. Earth dist.	-5031 Mar 15 j 02:57	15°≈17'54	49.81515 AU
retrograde	-5039 Jun 17 j 13:08	9°≈06'15		retrograde	-5031 Jun 25 j 11:41	16°≈47'00	
opposition	-5039 Sep 08 j 14:20	8°≈06'18	-16°-31'-27	opposition	-5031 Sep 16 j 02:09	15°≈47'19	-15°-35'-10
min. Earth dist.	-5039 Sep 07 j 22:59	8°≈07'02	47.98937 AU	min. Earth dist.	-5031 Sep 15 j 21:43	15°≈47'32	47.86987 AU
direct	-5039 Nov 28 j 23:18	7°≈06'57			-5031 Nov 02 j 22:09	15°≈	
				direct	-5031 Dec 06 j 11:34	14°≈47'58	
conjunction	-5038 Mar 08 j 02:30	8°≈33'58	-15°-49'-22		-5030 Jan 09 j 00:18	15°≈	
minimum elong	-5038 Mar 08 j 02:40	8°≈33'59	15°49'37				
max. Earth dist.	-5038 Mar 08 j 19:49	8°≈34'57	49.91141 AU	conjunction	-5030 Mar 16 j 02:19	16°≈15'03	-14°-54'-13
retrograde	-5038 Jun 18 j 18:39	10°≈03'44		minimum elong	-5030 Mar 16 j 02:31	16°≈15'04	14°54'26
opposition	-5038 Sep 09 j 18:43	9°≈03'51	-16°-25'-16	max. Earth dist.	-5030 Mar 16 j 06:53	16°≈15'19	49.78245 AU
min. Earth dist.	-5038 Sep 09 j 03:53	9°≈04'33	47.99061 AU	retrograde	-5030 Jun 26 j 16:54	17°≈44'28	
direct	-5038 Nov 30 j 04:19	8°≈04'31		opposition	-5030 Sep 17 j 06:21	16°≈44'47	-15°-27'-2
				min. Earth dist.	-5030 Sep 17 j 02:16	16°≈44'59	47.83410 AU
conjunction	-5037 Mar 09 j 08:23	9°≈31'32	-15°-43'-18	direct	-5030 Dec 07 j 15:57	15°≈45'23	
minimum elong	-5037 Mar 09 j 08:35	9°≈31'33	15°43'32				
max. Earth dist.	-5037 Mar 09 j 23:24	9°≈32'23	49.91191 AU	conjunction	-5029 Mar 17 j 08:14	17°≈12'29	-14°-46'-15
retrograde	-5037 Jun 20 j 03:04	11°≈01'15		minimum elong	-5029 Mar 17 j 08:27	17°≈12'30	14°46'29
opposition	-5037 Sep 10 j 23:18	10°≈01'26	-16°-18'-50	max. Earth dist.	-5029 Mar 17 j 11:33	17°≈12'41	49.74613 AU
min. Earth dist.	-5037 Sep 10 j 09:52	10°≈02'04	47.98819 AU	retrograde	-5029 Jun 27 j 18:43	18°≈41'53	
direct	-5037 Dec 01 j 05:57	9°≈02'08		opposition	-5029 Sep 18 j 10:49	17°≈42'12	-15°-18'-39
				min. Earth dist.	-5029 Sep 18 j 08:44	17°≈42'17	47.79501 AU
conjunction	-5036 Mar 09 j 14:18	10°≈29'09	-15°-36'-59	direct	-5029 Dec 08 j 23:51	16°≈42'46	
minimum elong	-5036 Mar 09 j 14:28	10°≈29'10	15°37'14				
max. Earth dist.	-5036 Mar 10 j 04:53	10°≈29'59	49.90833 AU	conjunction	-5028 Mar 17 j 14:01	18°≈09'53	-14°-38'-2
retrograde	-5036 Jun 20 j 08:13	11°≈58'50		minimum elong	-5028 Mar 17 j 14:13	18°≈09'54	14°38'14
opposition	-5036 Sep 11 j 03:50	10°≈59'04	-16°-12'-8	max. Earth dist.	-5028 Mar 17 j 17:00	18°≈10'03	49.70684 AU
min. Earth dist.	-5036 Sep 10 j 16:09	10°≈59'37	47.98127 AU	retrograde	-5028 Jun 27 j 22:28	19°≈39'16	
direct	-5036 Dec 01 j 11:04	9°≈59'47		opposition	-5028 Sep 18 j 15:09	18°≈39'34	-15°-9'-59
				min. Earth dist.	-5028 Sep 18 j 13:12	18°≈39'40	47.75295 AU
conjunction	-5035 Mar 10 j 20:18	11°≈26'50	-15°-30'-25	direct	-5028 Dec 09 j 06:21	17°≈40'07	
minimum elong	-5035 Mar 10 j 20:30	11°≈26'51	15°30'39				
max. Earth dist.	-5035 Mar 11 j 08:45	11°≈27'33	49.90015 AU	conjunction	-5027 Mar 18 j 19:49	19°≈07'16	-14°-29'-33
retrograde	-5035 Jun 21 j 12:29	12°≈56'28		minimum elong	-5027 Mar 18 j 20:01	19°≈07'17	14°29'46
opposition	-5035 Sep 12 j 08:14	11°≈56'45	-16°-5'-12	max. Earth dist.	-5027 Mar 18 j 20:39	19°≈07'19	49.66471 AU
min. Earth dist.	-5035 Sep 11 j 21:18	11°≈57'16	47.96943 AU	retrograde	-5027 Jun 29 j 06:48	20°≈36'39	
direct	-5035 Dec 02 j 17:04	10°≈57'29		opposition	-5027 Sep 19 j 19:29	19°≈36'58	-15°-1'-3
				min. Earth dist.	-5027 Sep 19 j 18:51	19°≈37'00	47.70818 AU
conjunction	-5034 Mar 12 j 02:25	12°≈24'33	-15°-23'-38	direct	-5027 Dec 10 j 07:46	18°≈37'29	
minimum elong	-5034 Mar 12 j 02:36	12°≈24'34	15°23'53				
max. Earth dist.	-5034 Mar 12 j 13:01	12°≈25'09	49.88666 AU	conjunction	-5026 Mar 20 j 01:52	20°≈04'42	-14°-20'-48
retrograde	-5034 Jun 22 j 16:38	13°≈54'09		minimum elong	-5026 Mar 20 j 02:05	20°≈04'43	14°21'00



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 24

Attention, astronomical year style is used: The year -5026 in astronomical counting style is the year 5027 BCE in historical counting style.

max. Earth dist.	-5026 Mar 20 j 02:31	20° $\approx$ 04'45	49.61977 AU	min. Earth dist.	-5018 Sep 28 j 22:49	28° $\approx$ 16'36	47.11859 AU
retrograde	-5026 Jun 30 j 12:44	21° $\approx$ 34'06		direct	-5018 Dec 19 j 06:59	27° $\approx$ 17'12	
opposition	-5026 Sep 20 j 23:55	20° $\approx$ 34'26	-14°-51'-51				
min. Earth dist.	-5026 Sep 21 j 00:32	20° $\approx$ 34'24	47.66031 AU	conjunction	-5017 Mar 29 j 09:13	28° $\approx$ 45'16	-12°-51'-11
direct	-5026 Dec 11 j 12:06	19° $\approx$ 34'56		minimum elong	-5017 Mar 29 j 09:26	28° $\approx$ 45'16	12°51'21
				max. Earth dist.	-5017 Mar 28 j 19:31	28° $\approx$ 44'29	49.02346 AU
conjunction	-5025 Mar 21 j 07:46	21° $\approx$ 02'13	-14°-11'-47		-5017 Jun 01 j 14:20	0° $\approx$	
minimum elong	-5025 Mar 21 j 07:58	21° $\approx$ 02'14	14°12'00	retrograde	-5017 Jul 09 j 13:15	0° $\approx$ 15'02	
max. Earth dist.	-5025 Mar 21 j 06:38	21° $\approx$ 02'10	49.57171 AU		-5017 Aug 16 j 14:57	30° $\approx$	
retrograde	-5025 Jul 01 j 18:13	22° $\approx$ 31'38		opposition	-5017 Sep 29 j 16:26	29° $\approx$ 15'11	-13°-17'-54
opposition	-5025 Sep 22 j 04:12	21° $\approx$ 31'59	-14°-42'-23	min. Earth dist.	-5017 Sep 30 j 04:52	29° $\approx$ 14'35	47.03145 AU
min. Earth dist.	-5025 Sep 22 j 05:21	21° $\approx$ 31'56	47.60909 AU	direct	-5017 Dec 20 j 09:24	28° $\approx$ 15'12	
direct	-5025 Dec 12 j 16:40	20° $\approx$ 32'27					
				conjunction	-5016 Mar 29 j 15:34	29° $\approx$ 43'23	-12°-40'-1
conjunction	-5024 Mar 21 j 13:47	21° $\approx$ 59'51	-14°-2'-32	minimum elong	-5016 Mar 29 j 15:48	29° $\approx$ 43'24	12°40'12
minimum elong	-5024 Mar 21 j 14:00	21° $\approx$ 59'52	14°02'44	max. Earth dist.	-5016 Mar 29 j 01:46	29° $\approx$ 42'36	48.93624 AU
max. Earth dist.	-5024 Mar 21 j 11:14	21° $\approx$ 59'42	49.51985 AU		-5016 Apr 10 j 19:55	0° $\approx$	
retrograde	-5024 Jul 01 j 22:09	23° $\approx$ 29'18		retrograde	-5016 Jul 09 j 19:26	1° $\approx$ 13'15	
opposition	-5024 Sep 22 j 08:42	22° $\approx$ 29'39	-14°-32'-39	opposition	-5016 Sep 29 j 21:05	0° $\approx$ 13'22	-13°-6'-11
min. Earth dist.	-5024 Sep 22 j 12:06	22° $\approx$ 29'30	47.55381 AU	min. Earth dist.	-5016 Sep 30 j 10:36	0° $\approx$ 12'43	46.94127 AU
direct	-5024 Dec 12 j 22:55	21° $\approx$ 30'07			-5016 Oct 11 j 12:35	30° $\approx$	
				direct	-5016 Dec 20 j 13:39	29° $\approx$ 13'18	
conjunction	-5023 Mar 22 j 19:53	22° $\approx$ 57'36	-13°-53'-2		-5015 Feb 27 j 08:14	0° $\approx$	
minimum elong	-5023 Mar 22 j 20:05	22° $\approx$ 57'36	13°53'14	conjunction	-5015 Mar 30 j 21:49	0° $\approx$ 41'39	-12°-28'-35
max. Earth dist.	-5023 Mar 22 j 16:23	22° $\approx$ 57'24	49.46371 AU	minimum elong	-5015 Mar 30 j 22:02	0° $\approx$ 41'39	12°28'44
retrograde	-5023 Jul 03 j 02:01	24° $\approx$ 27'05		max. Earth dist.	-5015 Mar 30 j 06:19	0° $\approx$ 40'46	48.84629 AU
opposition	-5023 Sep 23 j 13:09	23° $\approx$ 27'27	-14°-22'-42	retrograde	-5015 Jul 11 j 02:07	2° $\approx$ 11'36	
min. Earth dist.	-5023 Sep 23 j 17:11	23° $\approx$ 27'15	47.49371 AU	opposition	-5015 Oct 01 j 01:46	1° $\approx$ 11'42	-12°-54'-12
direct	-5023 Dec 14 j 05:31	22° $\approx$ 27'52		min. Earth dist.	-5015 Oct 01 j 15:38	1° $\approx$ 11'02	46.84836 AU
				direct	-5015 Dec 21 j 18:00	0° $\approx$ 11'35	
conjunction	-5022 Mar 24 j 02:04	23° $\approx$ 55'26	-13°-43'-18	max. Earth dist.	-5014 Mar 31 j 11:32	1° $\approx$ 39'09	48.75337 AU
minimum elong	-5022 Mar 24 j 02:18	23° $\approx$ 55'27	13°43'29	conjunction	-5014 Apr 01 j 04:18	1° $\approx$ 40'06	-12°-16'-53
max. Earth dist.	-5022 Mar 23 j 19:51	23° $\approx$ 55'05	49.40246 AU	minimum elong	-5014 Apr 01 j 04:31	1° $\approx$ 40'07	12°17'03
retrograde	-5022 Jul 04 j 09:29	25° $\approx$ 24'58		retrograde	-5014 Jul 12 j 06:28	3° $\approx$ 10'11	
opposition	-5022 Sep 24 j 17:40	24° $\approx$ 25'19	-14°-12'-30	opposition	-5014 Oct 02 j 06:32	2° $\approx$ 10'15	-12°-41'-56
min. Earth dist.	-5022 Sep 24 j 23:40	24° $\approx$ 25'02	47.42847 AU	min. Earth dist.	-5014 Oct 02 j 22:24	2° $\approx$ 09'29	46.75245 AU
direct	-5022 Dec 15 j 08:43	23° $\approx$ 25'42		direct	-5014 Dec 23 j 00:48	1° $\approx$ 10'05	
conjunction	-5021 Mar 25 j 08:24	24° $\approx$ 53'21	-13°-33'-21	conjunction	-5013 Apr 02 j 10:53	2° $\approx$ 38'48	-12°-4'-55
minimum elong	-5021 Mar 25 j 08:36	24° $\approx$ 53'21	13°33'32	minimum elong	-5013 Apr 02 j 11:06	2° $\approx$ 38'49	12°05'04
max. Earth dist.	-5021 Mar 25 j 01:28	24° $\approx$ 52'57	49.33594 AU	max. Earth dist.	-5013 Apr 01 j 17:32	2° $\approx$ 37'48	48.65748 AU
retrograde	-5021 Jul 05 j 16:07	26° $\approx$ 22'55		retrograde	-5013 Jul 13 j 10:25	4° $\approx$ 09'01	
opposition	-5021 Sep 25 j 22:16	25° $\approx$ 23'14	-14°-2'-5	opposition	-5013 Oct 03 j 11:20	3° $\approx$ 09'05	-12°-29'-24
min. Earth dist.	-5021 Sep 26 j 05:56	25° $\approx$ 22'52	47.35785 AU	min. Earth dist.	-5013 Oct 04 j 03:26	3° $\approx$ 08'18	46.65319 AU
direct	-5021 Dec 16 j 12:44	24° $\approx$ 23'33		direct	-5013 Dec 24 j 07:52	2° $\approx$ 08'52	
conjunction	-5020 Mar 25 j 14:25	25° $\approx$ 51'17	-13°-23'-10	conjunction	-5012 Apr 02 j 17:17	3° $\approx$ 37'46	-11°-52'-42
minimum elong	-5020 Mar 25 j 14:39	25° $\approx$ 51'18	13°23'22	minimum elong	-5012 Apr 02 j 17:30	3° $\approx$ 37'47	11°52'52
max. Earth dist.	-5020 Mar 25 j 05:17	25° $\approx$ 50'46	49.26437 AU	max. Earth dist.	-5012 Apr 01 j 21:37	3° $\approx$ 36'39	48.55787 AU
retrograde	-5020 Jul 05 j 23:02	27° $\approx$ 20'53		retrograde	-5012 Jul 13 j 18:00	5° $\approx$ 08'10	
opposition	-5020 Sep 26 j 02:47	26° $\approx$ 21'10	-13°-51'-25	opposition	-5012 Oct 03 j 16:19	4° $\approx$ 08'12	-12°-16'-37
min. Earth dist.	-5020 Sep 26 j 11:06	26° $\approx$ 20'46	47.28238 AU	min. Earth dist.	-5012 Oct 04 j 10:20	4° $\approx$ 07'20	46.55000 AU
direct	-5020 Dec 16 j 16:38	25° $\approx$ 21'24		direct	-5012 Dec 24 j 11:29	3° $\approx$ 07'56	
				max. Earth dist.	-5011 Apr 03 j 03:56	4° $\approx$ 35'52	48.45388 AU
conjunction	-5019 Mar 26 j 20:41	26° $\approx$ 49'15	-13°-12'-45	conjunction	-5011 Apr 04 j 00:10	4° $\approx$ 37'02	-11°-40'-14
minimum elong	-5019 Mar 26 j 20:54	26° $\approx$ 49'16	13°12'56	minimum elong	-5011 Apr 04 j 00:24	4° $\approx$ 37'03	11°40'23
max. Earth dist.	-5019 Mar 26 j 10:00	26° $\approx$ 48'39	49.18800 AU	retrograde	-5011 Jul 15 j 01:54	6° $\approx$ 07'35	
retrograde	-5019 Jul 07 j 02:03	28° $\approx$ 18'54		opposition	-5011 Oct 04 j 21:16	5° $\approx$ 07'35	-12°-3'-34
opposition	-5019 Sep 27 j 07:19	27° $\approx$ 19'08	-13°-40'-30	min. Earth dist.	-5011 Oct 05 j 16:50	5° $\approx$ 06'38	46.44198 AU
min. Earth dist.	-5019 Sep 27 j 17:57	27° $\approx$ 18'37	47.20244 AU	direct	-5011 Dec 25 j 15:10	4° $\approx$ 07'14	
direct	-5019 Dec 17 j 23:42	26° $\approx$ 19'17		max. Earth dist.	-5010 Apr 04 j 08:21	5° $\approx$ 35'15	48.34493 AU
conjunction	-5018 Mar 28 j 03:03	27° $\approx$ 47'14	-13°-2'-6	conjunction	-5010 Apr 05 j 07:05	5° $\approx$ 36'34	-11°-27'-31
minimum elong	-5018 Mar 28 j 03:17	27° $\approx$ 47'15	13°02'17	minimum elong	-5010 Apr 05 j 07:18	5° $\approx$ 36'35	11°27'40
max. Earth dist.	-5018 Mar 27 j 15:42	27° $\approx$ 46'35	49.10759 AU				
retrograde	-5018 Jul 08 j 05:19	29° $\approx$ 16'56					
opposition	-5018 Sep 28 j 11:50	28° $\approx$ 17'07	-13°-29'-20				



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 25

Attention, astronomical year style is used: The year -5010 in astronomical counting style is the year 5011 BCE in historical counting style.

retrograde	-5010 Jul	16 j 11:27	7° <del>✕</del> 07'14		direct	-5001 Jan	03 j 21:10	13° <del>✕</del> 07'56	
opposition	-5010 Oct	06 j 02:22	6° <del>✕</del> 07'12	-11°-50'-16	max. Earth dist.	-5001 Apr	13 j 13:54	14° <del>✕</del> 37'19	47.16718 AU
min. Earth dist.	-5010 Oct	06 j 22:51	6° <del>✕</del> 06'12	46.32881 AU					
direct	-5010 Dec	26 j 18:18	5° <del>✕</del> 06'46		conjunction	-5001 Apr	15 j 00:07	14° <del>✕</del> 39'19	-9°-21'-49
					minimum elong	-5001 Apr	15 j 00:19	14° <del>✕</del> 39'20	9°21'56
conjunction	-5009 Apr	06 j 14:03	6° <del>✕</del> 36'18	-11°-14'-35	retrograde	-5001 Jul	25 j 17:33	16° <del>✕</del> 11'35	
minimum elong	-5009 Apr	06 j 14:17	6° <del>✕</del> 36'19	11°14'43	opposition	-5001 Oct	15 j 03:30	15° <del>✕</del> 10'42	-9°-38'-39
max. Earth dist.	-5009 Apr	05 j 13:39	6° <del>✕</del> 34'53	48.23052 AU	min. Earth dist.	-5001 Oct	16 j 11:01	15° <del>✕</del> 09'09	45.12072 AU
retrograde	-5009 Jul	17 j 16:10	8° <del>✕</del> 07'07		direct	-5000 Jan	05 j 02:56	14° <del>✕</del> 09'07	
opposition	-5009 Oct	07 j 07:38	7° <del>✕</del> 07'00	-11°-36'-44	max. Earth dist.	-5000 Apr	13 j 19:33	15° <del>✕</del> 38'42	47.02043 AU
min. Earth dist.	-5009 Oct	08 j 06:34	7° <del>✕</del> 05'53	46.21022 AU					
direct	-5009 Dec	28 j 01:06	6° <del>✕</del> 06'27		conjunction	-5000 Apr	15 j 07:48	15° <del>✕</del> 40'50	-9°-6'-30
					minimum elong	-5000 Apr	15 j 08:01	15° <del>✕</del> 40'50	9°06'36
conjunction	-5008 Apr	06 j 21:06	7° <del>✕</del> 36'11	-11°-1'-24	retrograde	-5000 Jul	26 j 04:04	17° <del>✕</del> 13'22	
minimum elong	-5008 Apr	06 j 21:19	7° <del>✕</del> 36'12	11°01'32	opposition	-5000 Oct	15 j 09:22	16° <del>✕</del> 12'24	-9°-22'-36
max. Earth dist.	-5008 Apr	05 j 19:37	7° <del>✕</del> 34'42	48.11102 AU	min. Earth dist.	-5000 Oct	16 j 17:41	16° <del>✕</del> 10'49	44.97065 AU
retrograde	-5008 Jul	17 j 18:52	9° <del>✕</del> 07'08		direct	-4999 Jan	05 j 06:11	15° <del>✕</del> 10'42	
opposition	-5008 Oct	07 j 12:46	8° <del>✕</del> 06'56	-11°-22'-56	max. Earth dist.	-4999 Apr	15 j 02:15	16° <del>✕</del> 40'33	46.86970 AU
min. Earth dist.	-5008 Oct	08 j 12:14	8° <del>✕</del> 05'47	46.08662 AU					
direct	-5008 Dec	28 j 10:14	7° <del>✕</del> 06'15		conjunction	-4999 Apr	16 j 15:49	16° <del>✕</del> 42'46	-8°-50'-54
max. Earth dist.	-5007 Apr	06 j 23:59	8° <del>✕</del> 34'33	47.98663 AU	minimum elong	-4999 Apr	16 j 16:01	16° <del>✕</del> 42'46	8°51'00
					retrograde	-4999 Jul	27 j 12:07	18° <del>✕</del> 15'34	
conjunction	-5007 Apr	08 j 04:06	8° <del>✕</del> 36'11	-10°-47'-58	opposition	-4999 Oct	16 j 15:35	17° <del>✕</del> 14'32	-9°-6'-16
minimum elong	-5007 Apr	08 j 04:19	8° <del>✕</del> 36'12	10°48'06	min. Earth dist.	-4999 Oct	18 j 02:13	17° <del>✕</del> 12'49	44.81626 AU
retrograde	-5007 Jul	19 j 01:32	10° <del>✕</del> 07'17		direct	-4998 Jan	06 j 12:10	16° <del>✕</del> 12'42	
opposition	-5007 Oct	08 j 18:05	9° <del>✕</del> 06'59	-11°-8'-53	max. Earth dist.	-4998 Apr	16 j 09:18	17° <del>✕</del> 42'49	46.71451 AU
min. Earth dist.	-5007 Oct	09 j 19:28	9° <del>✕</del> 05'44	45.95848 AU					
direct	-5007 Dec	29 j 15:30	8° <del>✕</del> 06'10		conjunction	-4998 Apr	18 j 00:02	17° <del>✕</del> 45'07	-8°-35'-3
max. Earth dist.	-5006 Apr	08 j 06:52	9° <del>✕</del> 34'38	47.85790 AU	minimum elong	-4998 Apr	18 j 00:15	17° <del>✕</del> 45'07	8°35'08
					retrograde	-4998 Jul	28 j 17:19	19° <del>✕</del> 18'12	
conjunction	-5006 Apr	09 j 11:21	9° <del>✕</del> 36'17	-10°-34'-17	opposition	-4998 Oct	17 j 21:46	18° <del>✕</del> 17'04	-8°-49'-40
minimum elong	-5006 Apr	09 j 11:34	9° <del>✕</del> 36'18	10°34'24	min. Earth dist.	-4998 Oct	19 j 08:54	18° <del>✕</del> 15'19	44.65714 AU
retrograde	-5006 Jul	20 j 07:46	11° <del>✕</del> 07'32		direct	-4997 Jan	07 j 21:35	17° <del>✕</del> 15'05	
opposition	-5006 Oct	09 j 23:21	10° <del>✕</del> 07'08	-10°-54'-33	max. Earth dist.	-4997 Apr	17 j 14:53	18° <del>✕</del> 45'23	46.55438 AU
min. Earth dist.	-5006 Oct	11 j 01:55	10° <del>✕</del> 05'50	45.82623 AU					
direct	-5006 Dec	30 j 20:57	9° <del>✕</del> 06'10		conjunction	-4997 Apr	19 j 08:19	18° <del>✕</del> 47'51	-8°-18'-56
					minimum elong	-4997 Apr	19 j 08:30	18° <del>✕</del> 47'52	8°19'01
conjunction	-5005 Apr	10 j 18:29	10° <del>✕</del> 36'30	-10°-20'-20	retrograde	-4997 Jul	30 j 00:20	20° <del>✕</del> 21'14	
minimum elong	-5005 Apr	10 j 18:42	10° <del>✕</del> 36'31	10°20'28	opposition	-4997 Oct	19 j 04:18	19° <del>✕</del> 19'59	-8°-32'-47
max. Earth dist.	-5005 Apr	09 j 12:05	10° <del>✕</del> 34'44	47.72553 AU	min. Earth dist.	-4997 Oct	20 j 17:32	19° <del>✕</del> 18'08	44.49320 AU
retrograde	-5005 Jul	21 j 16:30	12° <del>✕</del> 07'55		direct	-4996 Jan	09 j 04:36	18° <del>✕</del> 17'51	
opposition	-5005 Oct	11 j 04:46	11° <del>✕</del> 07'24	-10°-39'-57	max. Earth dist.	-4996 Apr	17 j 22:49	19° <del>✕</del> 48'28	46.38947 AU
min. Earth dist.	-5005 Oct	12 j 07:54	11° <del>✕</del> 06'04	45.69072 AU					
direct	-5004 Jan	01 j 00:49	10° <del>✕</del> 06'18		conjunction	-4996 Apr	19 j 16:41	19° <del>✕</del> 50'58	-8°-2'-34
max. Earth dist.	-5004 Apr	09 j 18:07	11° <del>✕</del> 35'02	47.58993 AU	minimum elong	-4996 Apr	19 j 16:53	19° <del>✕</del> 50'58	8°02'38
					retrograde	-4996 Jul	30 j 07:27	21° <del>✕</del> 24'38	
conjunction	-5004 Apr	11 j 01:36	11° <del>✕</del> 36'52	-10°-6'-7	opposition	-4996 Oct	19 j 10:52	20° <del>✕</del> 23'15	-8°-15'-37
minimum elong	-5004 Apr	11 j 01:48	11° <del>✕</del> 36'53	10°06'14	min. Earth dist.	-4996 Oct	21 j 01:12	20° <del>✕</del> 21'20	44.32449 AU
retrograde	-5004 Jul	21 j 22:50	13° <del>✕</del> 08'27		direct	-4995 Jan	09 j 11:17	19° <del>✕</del> 20'57	
opposition	-5004 Oct	11 j 10:24	12° <del>✕</del> 07'49	-10°-25'-4	max. Earth dist.	-4995 Apr	19 j 05:00	20° <del>✕</del> 51'45	46.22009 AU
min. Earth dist.	-5004 Oct	12 j 15:17	12° <del>✕</del> 06'24	45.55223 AU					
direct	-5003 Jan	01 j 07:39	11° <del>✕</del> 06'35		conjunction	-4995 Apr	21 j 01:12	20° <del>✕</del> 54'24	-7°-45'-55
max. Earth dist.	-5003 Apr	11 j 00:59	12° <del>✕</del> 35'32	47.45170 AU	minimum elong	-4995 Apr	21 j 01:23	20° <del>✕</del> 54'24	7°46'00
					retrograde	-4995 Jul	31 j 17:51	22° <del>✕</del> 28'22	
conjunction	-5003 Apr	12 j 08:59	12° <del>✕</del> 37'25	-9°-51'-38	opposition	-4995 Oct	20 j 17:23	21° <del>✕</del> 26'50	-7°-58'-11
minimum elong	-5003 Apr	12 j 09:12	12° <del>✕</del> 37'25	9°51'45	min. Earth dist.	-4995 Oct	22 j 08:49	21° <del>✕</del> 24'52	44.15166 AU
retrograde	-5003 Jul	23 j 03:26	14° <del>✕</del> 09'11		direct	-4994 Jan	10 j 15:47	20° <del>✕</del> 24'21	
opposition	-5003 Oct	12 j 15:51	13° <del>✕</del> 08'28	-10°-9'-53	max. Earth dist.	-4994 Apr	20 j 12:38	21° <del>✕</del> 55'27	46.04662 AU
min. Earth dist.	-5003 Oct	13 j 20:47	13° <del>✕</del> 07'03	45.41112 AU					
direct	-5002 Jan	02 j 15:44	12° <del>✕</del> 07'06		conjunction	-4994 Apr	22 j 10:00	21° <del>✕</del> 58'10	-7°-29'00
max. Earth dist.	-5002 Apr	12 j 06:23	13° <del>✕</del> 36'12	47.31082 AU	minimum elong	-4994 Apr	22 j 10:11	21° <del>✕</del> 58'10	7°29'05
					retrograde	-4994 Aug	02 j 02:47	23° <del>✕</del> 32'26	
conjunction	-5002 Apr	13 j 16:29	13° <del>✕</del> 38'12	-9°-36'-52	opposition	-4994 Oct	22 j 00:17	22° <del>✕</del> 30'44	-7°-40'-26
minimum elong	-5002 Apr	13 j 16:42	13° <del>✕</del> 38'13	9°36'58	min. Earth dist.	-4994 Oct	23 j 17:34	22° <del>✕</del> 28'40	43.97509 AU
retrograde	-5002 Jul	24 j 10:30	15° <del>✕</del> 10'13		direct	-4993 Jan	11 j 23:10	21° <del>✕</del> 28'03	
opposition	-5002 Oct	13 j 21:40	14° <del>✕</del> 09'25	-9°-54'-25	max. Earth dist.	-4993 Apr	21 j 20:32	22° <del>✕</del> 59'29	45.86985 AU
min. Earth dist.	-5002 Oct	15 j 04:16	14° <del>✕</del> 07'54	45.26744 AU					



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 26

Attention, astronomical year style is used: The year -4993 in astronomical counting style is the year 4994 BCE in historical counting style.

conjunction	-4993 Apr 23 j 18:41	23° <del>✕</del> 02'15	-7°-11'-48	max. Earth dist.	-4985 Apr 30 j 15:08	1° <del>°</del> 47'54	44.36019 AU
minimum elong	-4993 Apr 23 j 18:51	23° <del>✕</del> 02'16	7°11'52				
retrograde	-4993 Aug 03 j 10:29	24° <del>✕</del> 36'49		conjunction	-4985 May 02 j 23:47	1° <del>°</del> 51'25	-4°-43'-47
opposition	-4993 Oct 23 j 07:09	23° <del>✕</del> 34'59	-7°-22'-24	minimum elong	-4985 May 02 j 23:54	1° <del>°</del> 51'26	4°43'48
min. Earth dist.	-4993 Oct 25 j 00:27	23° <del>✕</del> 32'54	43.79550 AU	retrograde	-4985 Aug 12 j 10:58	3° <del>°</del> 29'12	
direct	-4992 Jan 13 j 08:13	22° <del>✕</del> 32'06		opposition	-4985 Oct 31 j 21:39	2° <del>°</del> 26'07	-4°-46'-57
max. Earth dist.	-4992 Apr 22 j 03:28	24° <del>✕</del> 03'47	45.69021 AU	min. Earth dist.	-4985 Nov 03 j 00:09	2° <del>°</del> 23'30	42.26426 AU
				direct	-4984 Jan 21 j 23:21	1° <del>°</del> 21'39	
conjunction	-4992 Apr 24 j 03:32	24° <del>✕</del> 06'42	-6°-54'-19	max. Earth dist.	-4984 May 01 j 00:58	2° <del>°</del> 56'28	44.15519 AU
minimum elong	-4992 Apr 24 j 03:43	24° <del>✕</del> 06'42	6°54'23				
retrograde	-4992 Aug 03 j 17:31	25° <del>✕</del> 41'36		conjunction	-4984 May 03 j 10:37	3° <del>°</del> 00'04	-4°-24'00
opposition	-4992 Oct 23 j 14:14	24° <del>✕</del> 39'36	-7°-4'-3	minimum elong	-4984 May 03 j 10:44	3° <del>°</del> 00'05	4°24'02
min. Earth dist.	-4992 Oct 25 j 09:22	24° <del>✕</del> 37'25	43.61346 AU	retrograde	-4984 Aug 12 j 21:51	4° <del>°</del> 38'18	
direct	-4991 Jan 13 j 16:08	23° <del>✕</del> 36'31		opposition	-4984 Nov 01 j 06:28	3° <del>°</del> 35'00	-4°-26'-8
max. Earth dist.	-4991 Apr 23 j 12:37	25° <del>✕</del> 08'36	45.50828 AU	min. Earth dist.	-4984 Nov 03 j 10:43	3° <del>°</del> 32'18	42.05618 AU
				direct	-4983 Jan 22 j 07:22	2° <del>°</del> 30'18	
conjunction	-4991 Apr 25 j 12:41	25° <del>✕</del> 11'31	-6°-36'-32	max. Earth dist.	-4983 May 02 j 10:27	4° <del>°</del> 05'32	43.94613 AU
minimum elong	-4991 Apr 25 j 12:51	25° <del>✕</del> 11'31	6°36'35				
retrograde	-4991 Aug 04 j 23:45	26° <del>✕</del> 46'46		conjunction	-4983 May 04 j 21:34	4° <del>°</del> 09'15	-4°-3'-55
opposition	-4991 Oct 24 j 21:32	25° <del>✕</del> 44'37	-6°-45'-24	minimum elong	-4983 May 04 j 21:41	4° <del>°</del> 09'16	4°03'56
min. Earth dist.	-4991 Oct 26 j 17:00	25° <del>✕</del> 42'25	43.42913 AU	retrograde	-4983 Aug 14 j 10:33	5° <del>°</del> 47'56	
direct	-4990 Jan 15 j 01:04	24° <del>✕</del> 41'21		opposition	-4983 Nov 02 j 15:26	4° <del>°</del> 44'26	-4°-5'-1
max. Earth dist.	-4990 Apr 24 j 19:52	26° <del>✕</del> 13'44	45.32422 AU	min. Earth dist.	-4983 Nov 04 j 20:07	4° <del>°</del> 41'42	41.84424 AU
				direct	-4982 Jan 23 j 16:09	3° <del>°</del> 39'27	
conjunction	-4990 Apr 26 j 21:54	26° <del>✕</del> 16'47	-6°-18'-28	max. Earth dist.	-4982 May 03 j 19:45	5° <del>°</del> 15'07	43.73317 AU
minimum elong	-4990 Apr 26 j 22:04	26° <del>✕</del> 16'47	6°18'32				
retrograde	-4990 Aug 06 j 11:10	27° <del>✕</del> 52'25		conjunction	-4982 May 06 j 08:47	5° <del>°</del> 18'58	-3°-43'-33
opposition	-4990 Oct 26 j 04:57	26° <del>✕</del> 50'07	-6°-26'-26	minimum elong	-4982 May 06 j 08:53	5° <del>°</del> 18'59	3°43'34
min. Earth dist.	-4990 Oct 28 j 01:10	26° <del>✕</del> 47'52	43.24281 AU	retrograde	-4982 Aug 15 j 20:52	6° <del>°</del> 58'08	
direct	-4989 Jan 16 j 05:21	25° <del>✕</del> 46'39		opposition	-4982 Nov 04 j 00:44	5° <del>°</del> 54'24	-3°-43'-36
max. Earth dist.	-4989 Apr 26 j 04:52	27° <del>✕</del> 19'28	45.13791 AU	min. Earth dist.	-4982 Nov 06 j 07:35	5° <del>°</del> 51'33	41.62887 AU
				direct	-4981 Jan 25 j 02:06	4° <del>°</del> 49'10	
conjunction	-4989 Apr 28 j 07:27	27° <del>✕</del> 22'33	-6°00'-7	max. Earth dist.	-4981 May 05 j 07:01	6° <del>°</del> 25'21	43.51715 AU
minimum elong	-4989 Apr 28 j 07:36	27° <del>✕</del> 22'33	6°00'09				
retrograde	-4989 Aug 07 j 21:46	28° <del>✕</del> 58'35		conjunction	-4981 May 07 j 20:14	6° <del>°</del> 29'15	-3°-22'-54
opposition	-4989 Oct 27 j 12:42	27° <del>✕</del> 56'09	-6°-7'-9	minimum elong	-4981 May 07 j 20:20	6° <del>°</del> 29'15	3°22'54
min. Earth dist.	-4989 Oct 29 j 10:31	27° <del>✕</del> 53'49	43.05410 AU	retrograde	-4981 Aug 17 j 05:03	8° <del>°</del> 08'54	
direct	-4988 Jan 17 j 10:56	26° <del>✕</del> 52'31		opposition	-4981 Nov 05 j 10:13	7° <del>°</del> 04'57	-3°-21'-51
max. Earth dist.	-4988 Apr 26 j 13:29	28° <del>✕</del> 25'43	44.94911 AU	min. Earth dist.	-4981 Nov 07 j 17:13	7° <del>°</del> 02'04	41.41074 AU
				direct	-4980 Jan 26 j 14:18	5° <del>°</del> 59'26	
conjunction	-4988 Apr 28 j 16:59	28° <del>✕</del> 28'53	-5°-41'-28	max. Earth dist.	-4980 May 05 j 16:20	7° <del>°</del> 36'04	43.29859 AU
minimum elong	-4988 Apr 28 j 17:08	28° <del>✕</del> 28'53	5°41'31				
retrograde	-4988 Jul 17 j 20:48	0° <del>°</del>		conjunction	-4980 May 08 j 07:39	7° <del>°</del> 40'07	-3°-1'-57
	-4988 Aug 08 j 07:20	0° <del>°</del> 05'20		minimum elong	-4980 May 08 j 07:44	7° <del>°</del> 40'07	3°01'57
	-4988 Aug 29 j 16:14	30° <del>°</del> <del>✕</del>		retrograde	-4980 Aug 17 j 16:27	9° <del>°</del> 20'17	
opposition	-4988 Oct 27 j 20:30	29° <del>✕</del> 02'45	-5°-47'-33	opposition	-4980 Nov 05 j 20:00	8° <del>°</del> 16'07	-2°-59'-48
min. Earth dist.	-4988 Oct 29 j 18:34	29° <del>✕</del> 00'24	42.86254 AU	min. Earth dist.	-4980 Nov 08 j 04:12	8° <del>°</del> 13'09	41.19048 AU
direct	-4987 Jan 17 j 20:22	27° <del>✕</del> 58'56		direct	-4979 Jan 26 j 22:48	7° <del>°</del> 10'20	
max. Earth dist.	-4987 Apr 27 j 21:19	29° <del>✕</del> 32'30	44.75688 AU	max. Earth dist.	-4979 May 07 j 04:15	8° <del>°</del> 47'33	43.07792 AU
conjunction	-4987 Apr 30 j 03:01	29° <del>✕</del> 35'49	-5°-22'-31	conjunction	-4979 May 09 j 19:40	8° <del>°</del> 51'37	-2°-40'-43
minimum elong	-4987 Apr 30 j 03:10	29° <del>✕</del> 35'49	5°22'33	minimum elong	-4979 May 09 j 19:45	8° <del>°</del> 51'38	2°40'43
	-4987 May 16 j 14:45	0° <del>°</del>		retrograde	-4979 Aug 19 j 03:36	10° <del>°</del> 32'22	
retrograde	-4987 Aug 09 j 16:18	1° <del>°</del> 12'41		opposition	-4979 Nov 07 j 06:03	9° <del>°</del> 27'58	-2°-37'-25
opposition	-4987 Oct 29 j 04:36	0° <del>°</del> 09'57	-5°-27'-39	min. Earth dist.	-4979 Nov 09 j 15:17	9° <del>°</del> 24'56	40.96832 AU
min. Earth dist.	-4987 Oct 31 j 04:53	0° <del>°</del> 07'29	42.66737 AU	direct	-4978 Jan 28 j 07:35	8° <del>°</del> 21'55	
	-4987 Nov 06 j 07:40	30° <del>°</del> <del>✕</del>		max. Earth dist.	-4978 May 08 j 15:11	9° <del>°</del> 59'41	42.85565 AU
direct	-4986 Jan 19 j 05:55	29° <del>✕</del> 05'56					
	-4986 Apr 01 j 09:06	0° <del>°</del>		conjunction	-4978 May 11 j 07:50	10° <del>°</del> 03'52	-2°-19'-11
max. Earth dist.	-4986 Apr 29 j 07:18	0° <del>°</del> 39'59	44.56073 AU	minimum elong	-4978 May 11 j 07:54	10° <del>°</del> 03'52	2°19'10
				retrograde	-4978 Aug 20 j 17:50	11° <del>°</del> 45'11	
conjunction	-4986 May 01 j 13:26	0° <del>°</del> 43'20	-5°-3'-18	opposition	-4978 Nov 08 j 16:24	10° <del>°</del> 40'35	-2°-14'-43
minimum elong	-4986 May 01 j 13:34	0° <del>°</del> 43'21	5°03'20	min. Earth dist.	-4978 Nov 11 j 01:44	10° <del>°</del> 37'32	40.74471 AU
retrograde	-4986 Aug 10 j 23:58	2° <del>°</del> 20'39		direct	-4977 Jan 29 j 16:30	9° <del>°</del> 34'16	
opposition	-4986 Oct 30 j 13:01	1° <del>°</del> 17'45	-5°-7'-27	max. Earth dist.	-4977 May 10 j 02:21	11° <del>°</del> 12'38	42.63164 AU
min. Earth dist.	-4986 Nov 01 j 14:04	1° <del>°</del> 15'14	42.46797 AU				
direct	-4985 Jan 20 j 16:17	0° <del>°</del> 13'31		conjunction	-4977 May 12 j 20:14	11° <del>°</del> 16'54	-1°-57'-22



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 27

Attention, astronomical year style is used: The year -4977 in astronomical counting style is the year 4978 BCE in historical counting style.

minimum elong	-4977 May 12 j 20:17	11° $\Upsilon$ 16'55	1°57'22	minimum elong	-4969 May 23 j 12:58	21° $\Upsilon$ 33'29	1°07'26
retrograde	-4977 Aug 22 j 07:29	12° $\Upsilon$ 58'51		retrograde	-4969 Sep 01 j 21:08	23° $\Upsilon$ 20'55	
opposition	-4977 Nov 10 j 03:10	11° $\Upsilon$ 54'01	-1°-51'-43	opposition	-4969 Nov 20 j 05:08	22° $\Upsilon$ 13'57	1°23'24
min. Earth dist.	-4977 Nov 12 j 14:14	11° $\Upsilon$ 50'53	40.51938 AU	min. Earth dist.	-4969 Nov 23 j 00:12	22° $\Upsilon$ 10'14	38.61368 AU
direct	-4976 Jan 31 j 03:33	10° $\Upsilon$ 47'28		direct	-4968 Feb 10 j 08:02	21° $\Upsilon$ 04'49	
max. Earth dist.	-4976 May 10 j 15:02	12° $\Upsilon$ 26'31	42.40580 AU	max. Earth dist.	-4968 May 21 j 00:21	22° $\Upsilon$ 49'12	40.48919 AU
conjunction	-4976 May 13 j 09:03	12° $\Upsilon$ 30'50	-1°-35'-15	conjunction	-4968 May 24 j 04:36	22° $\Upsilon$ 54'28	1°31'39
minimum elong	-4976 May 13 j 09:06	12° $\Upsilon$ 30'50	1°35'14	minimum elong	-4968 May 24 j 04:33	22° $\Upsilon$ 54'28	1°31'45
retrograde	-4976 Aug 22 j 19:34	14° $\Upsilon$ 13'24		retrograde	-4968 Sep 02 j 12:09	24° $\Upsilon$ 42'39	
opposition	-4976 Nov 10 j 14:00	13° $\Upsilon$ 08'23	-1°-28'-23	opposition	-4968 Nov 20 j 18:54	23° $\Upsilon$ 35'22	1°49'07
min. Earth dist.	-4976 Nov 13 j 01:10	13° $\Upsilon$ 05'13	40.29194 AU	min. Earth dist.	-4968 Nov 23 j 14:46	23° $\Upsilon$ 31'35	38.36490 AU
direct	-4975 Jan 31 j 16:44	12° $\Upsilon$ 01'34		direct	-4967 Feb 10 j 20:34	22° $\Upsilon$ 25'51	
max. Earth dist.	-4975 May 12 j 01:57	13° $\Upsilon$ 41'11	42.17739 AU	max. Earth dist.	-4967 May 22 j 16:20	24° $\Upsilon$ 11'04	40.23947 AU
conjunction	-4975 May 14 j 22:14	13° $\Upsilon$ 45'40	-1°-12'-51	conjunction	-4967 May 25 j 20:48	24° $\Upsilon$ 16'22	1°56'12
minimum elong	-4975 May 14 j 22:17	13° $\Upsilon$ 45'40	1°12'50	minimum elong	-4967 May 25 j 20:44	24° $\Upsilon$ 16'22	1°56'17
retrograde	-4975 Aug 24 j 08:11	15° $\Upsilon$ 28'54		retrograde	-4967 Sep 04 j 03:40	26° $\Upsilon$ 05'22	
opposition	-4975 Nov 12 j 01:23	14° $\Upsilon$ 23'40	-1°-4'-45	opposition	-4967 Nov 22 j 09:22	24° $\Upsilon$ 57'44	2°15'06
min. Earth dist.	-4975 Nov 14 j 14:24	14° $\Upsilon$ 20'23	40.06180 AU	min. Earth dist.	-4967 Nov 25 j 06:15	24° $\Upsilon$ 53'53	38.11546 AU
direct	-4974 Feb 02 j 03:21	13° $\Upsilon$ 16'35		direct	-4966 Feb 12 j 09:33	23° $\Upsilon$ 47'51	
max. Earth dist.	-4974 May 13 j 15:16	14° $\Upsilon$ 56'54	41.94579 AU	max. Earth dist.	-4966 May 24 j 08:12	25° $\Upsilon$ 33'54	39.98941 AU
conjunction	-4974 May 16 j 11:54	15° $\Upsilon$ 01'27	0°-50'-11	conjunction	-4966 May 27 j 13:12	25° $\Upsilon$ 39'17	2°20'58
minimum elong	-4974 May 16 j 11:55	15° $\Upsilon$ 01'27	0°50'08	minimum elong	-4966 May 27 j 13:08	25° $\Upsilon$ 39'17	2°21'05
retrograde	-4974 Aug 25 j 19:21	16° $\Upsilon$ 45'21		retrograde	-4966 Sep 05 j 21:57	27° $\Upsilon$ 29'06	
opposition	-4974 Nov 13 j 13:07	15° $\Upsilon$ 39'53	0°-40'-49	opposition	-4966 Nov 24 j 00:07	26° $\Upsilon$ 21'10	2°41'21
min. Earth dist.	-4974 Nov 16 j 03:11	15° $\Upsilon$ 36'31	39.82824 AU	min. Earth dist.	-4966 Nov 26 j 20:34	26° $\Upsilon$ 17'19	37.86595 AU
direct	-4973 Feb 03 j 15:23	14° $\Upsilon$ 32'31		direct	-4965 Feb 13 j 22:42	25° $\Upsilon$ 10'55	
max. Earth dist.	-4973 May 15 j 03:06	16° $\Upsilon$ 13'25	41.71075 AU	max. Earth dist.	-4965 May 26 j 00:04	26° $\Upsilon$ 57'49	39.73911 AU
conjunction	-4973 May 18 j 01:45	16° $\Upsilon$ 18'08	0°-27'-13	conjunction	-4965 May 29 j 06:10	27° $\Upsilon$ 03'19	2°45'59
minimum elong	-4973 May 18 j 01:46	16° $\Upsilon$ 18'08	0°27'11	minimum elong	-4965 May 29 j 06:05	27° $\Upsilon$ 03'18	2°46'05
retrograde	-4973 Aug 27 j 11:03	18° $\Upsilon$ 02'43		retrograde	-4965 Sep 07 j 15:43	28° $\Upsilon$ 54'01	
opposition	-4973 Nov 15 j 01:11	16° $\Upsilon$ 56'59	0°-16'-34	opposition	-4965 Nov 25 j 15:26	27° $\Upsilon$ 45'46	3°07'50
min. Earth dist.	-4973 Nov 17 j 16:00	16° $\Upsilon$ 53'35	39.59132 AU	min. Earth dist.	-4965 Nov 28 j 13:26	27° $\Upsilon$ 41'48	37.61638 AU
direct	-4972 Feb 05 j 00:23	15° $\Upsilon$ 49'18		direct	-4964 Feb 15 j 13:18	26° $\Upsilon$ 35'09	
max. Earth dist.	-4972 May 15 j 16:09	17° $\Upsilon$ 30'53	41.47205 AU	max. Earth dist.	-4964 May 26 j 17:51	28° $\Upsilon$ 23'02	39.48863 AU
conjunction	-4972 May 18 j 16:02	17° $\Upsilon$ 35'41	0°-4'-2	conjunction	-4964 May 29 j 23:33	28° $\Upsilon$ 28'34	3°11'12
minimum elong	-4972 May 18 j 16:02	17° $\Upsilon$ 35'41	0°03'59	minimum elong	-4964 May 29 j 23:26	28° $\Upsilon$ 28'33	3°11'19
behind sun begin	-4972 May 18 j 09:35	17° $\Upsilon$ 35'17			-4964 Jul 31 j 06:14	0° $\mathcal{B}$	
behind sun end	-4972 May 18 j 22:29	17° $\Upsilon$ 36'06		retrograde	-4964 Sep 08 j 08:56	0° $\mathcal{B}$ 20'10	
asc. node	-4972 Jul 20 j 04:02	19° $\Upsilon$ 02'08			-4964 Oct 17 j 22:25	30° $\mathcal{R}\Upsilon$	
retrograde	-4972 Aug 28 j 02:00	19° $\Upsilon$ 20'59		opposition	-4964 Nov 26 j 07:10	29° $\Upsilon$ 11'37	3°34'34
opposition	-4972 Nov 15 j 13:43	18° $\Upsilon$ 14'58	0°07'58	min. Earth dist.	-4964 Nov 29 j 05:00	29° $\Upsilon$ 07'39	37.36638 AU
min. Earth dist.	-4972 Nov 18 j 06:33	18° $\Upsilon$ 11'26	39.35087 AU	direct	-4963 Feb 16 j 07:07	28° $\Upsilon$ 00'40	
direct	-4971 Feb 05 j 11:02	17° $\Upsilon$ 06'57		max. Earth dist.	-4963 May 28 j 09:52	29° $\Upsilon$ 49'25	39.23731 AU
max. Earth dist.	-4971 May 17 j 06:02	18° $\Upsilon$ 49'13	41.23007 AU				
conjunction	-4971 May 20 j 06:43	18° $\Upsilon$ 54'07	0°19'33	conjunction	-4963 May 31 j 17:30	29° $\Upsilon$ 55'07	3°36'37
minimum elong	-4971 May 20 j 06:43	18° $\Upsilon$ 54'07	0°19'37	minimum elong	-4963 May 31 j 17:22	29° $\Upsilon$ 55'07	3°36'45
retrograde	-4971 Aug 29 j 17:01	20° $\Upsilon$ 40'06			-4963 Jun 03 j 13:37	0° $\mathcal{B}$	
opposition	-4971 Nov 17 j 02:21	19° $\Upsilon$ 33'47	0°32'49	retrograde	-4963 Sep 10 j 03:37	1° $\mathcal{B}$ 47'40	
min. Earth dist.	-4971 Nov 19 j 19:23	19° $\Upsilon$ 30'13	39.10739 AU	opposition	-4963 Nov 27 j 23:23	0° $\mathcal{B}$ 38'49	4°01'32
direct	-4970 Feb 07 j 02:20	18° $\Upsilon$ 25'24		min. Earth dist.	-4963 Nov 30 j 22:33	0° $\mathcal{B}$ 34'45	37.11554 AU
max. Earth dist.	-4970 May 18 j 18:56	20° $\Upsilon$ 08'18	40.98510 AU		-4963 Dec 27 j 21:10	30° $\mathcal{R}\Upsilon$	
conjunction	-4970 May 21 j 21:45	20° $\Upsilon$ 13'23	0°43'19	direct	-4962 Feb 17 j 22:23	29° $\Upsilon$ 27'30	
minimum elong	-4970 May 21 j 21:44	20° $\Upsilon$ 13'23	0°43'24		-4962 Apr 10 j 01:14	0° $\mathcal{B}$	
retrograde	-4970 Aug 31 j 08:15	22° $\Upsilon$ 00'04		max. Earth dist.	-4962 May 30 j 04:37	1° $\mathcal{B}$ 17'17	38.98467 AU
opposition	-4970 Nov 18 j 15:35	20° $\Upsilon$ 53'26	0°57'58	conjunction	-4962 Jun 02 j 12:08	1° $\mathcal{B}$ 23'02	4°02'15
min. Earth dist.	-4970 Nov 21 j 10:25	20° $\Upsilon$ 49'45	38.86147 AU	minimum elong	-4962 Jun 02 j 11:59	1° $\mathcal{B}$ 23'01	4°02'22
direct	-4969 Feb 08 j 16:35	19° $\Upsilon$ 44'41		retrograde	-4962 Sep 11 j 20:39	3° $\mathcal{B}$ 16'33	
max. Earth dist.	-4969 May 20 j 10:27	21° $\Upsilon$ 28'23	40.73791 AU	opposition	-4962 Nov 29 j 16:23	2° $\mathcal{B}$ 07'24	4°28'43
conjunction	-4969 May 23 j 13:00	21° $\Upsilon$ 33'29	1°07'21	min. Earth dist.	-4962 Dec 02 j 16:18	2° $\mathcal{B}$ 03'16	36.86321 AU
				direct	-4961 Feb 19 j 15:03	0° $\mathcal{B}$ 55'43	
				max. Earth dist.	-4961 May 31 j 22:03	2° $\mathcal{B}$ 46'25	38.73044 AU



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 28

Attention, astronomical year style is used: The year -4961 in astronomical counting style is the year 4962 BCE in historical counting style.

conjunction	-4961 Jun 04 j 06:57	2°852'19	4°28'03	conjunction	-4953 Jun 17 j 10:40	15°837'09	7°58'46
minimum elong	-4961 Jun 04 j 06:48	2°852'19	4°28'11	minimum elong	-4953 Jun 17 j 10:23	15°837'08	7°58'57
retrograde	-4961 Sep 13 j 16:47	4°846'51		retrograde	-4953 Sep 26 j 23:49	17°840'25	
opposition	-4961 Dec 01 j 09:46	3°837'21	4°56'07	opposition	-4953 Dec 14 j 02:14	16°827'49	8°40'04
min. Earth dist.	-4961 Dec 04 j 10:06	3°833'10	36.60936 AU	min. Earth dist.	-4953 Dec 17 j 06:28	16°823'11	34.56518 AU
direct	-4960 Feb 21 j 06:11	2°825'17		direct	-4952 Mar 04 j 15:01	15°812'12	
max. Earth dist.	-4960 Jun 01 j 16:48	4°816'59	38.47432 AU	max. Earth dist.	-4952 Jun 14 j 23:18	17°813'05	36.41767 AU
conjunction	-4960 Jun 05 j 02:38	4°823'00	4°54'02	conjunction	-4952 Jun 18 j 10:51	17°819'42	8°25'13
minimum elong	-4960 Jun 05 j 02:27	4°822'59	4°54'10	minimum elong	-4952 Jun 18 j 10:33	17°819'41	8°25'23
retrograde	-4960 Sep 14 j 13:25	6°818'32		retrograde	-4952 Sep 28 j 01:45	19°824'12	
opposition	-4960 Dec 02 j 03:42	5°808'41	5°23'42	opposition	-4952 Dec 15 j 01:04	18°811'14	9°08'12
min. Earth dist.	-4960 Dec 05 j 05:45	5°804'23	36.35383 AU	min. Earth dist.	-4952 Dec 18 j 04:24	18°806'37	34.31616 AU
direct	-4959 Feb 21 j 21:59	3°856'12		direct	-4951 Mar 06 j 14:44	16°855'11	
max. Earth dist.	-4959 Jun 03 j 12:32	5°848'57	38.21673 AU	max. Earth dist.	-4951 Jun 16 j 23:10	18°857'19	36.16707 AU
conjunction	-4959 Jun 06 j 22:46	5°855'03	5°20'10	conjunction	-4951 Jun 20 j 11:47	19°804'05	8°51'34
minimum elong	-4959 Jun 06 j 22:35	5°855'02	5°20'18	minimum elong	-4951 Jun 20 j 11:28	19°804'03	8°51'46
retrograde	-4959 Sep 16 j 10:46	7°851'36		retrograde	-4951 Sep 30 j 05:45	21°809'50	
opposition	-4959 Dec 03 j 22:11	6°841'23	5°51'28	opposition	-4951 Dec 17 j 00:56	19°856'29	9°36'15
min. Earth dist.	-4959 Dec 06 j 23:57	6°837'04	36.09703 AU	min. Earth dist.	-4951 Dec 20 j 05:16	19°851'48	34.06892 AU
direct	-4958 Feb 23 j 16:48	5°828'28		direct	-4950 Mar 08 j 13:51	18°840'02	
max. Earth dist.	-4958 Jun 05 j 07:33	7°822'12	37.95785 AU	max. Earth dist.	-4950 Jun 19 j 01:56	20°843'35	35.91791 AU
conjunction	-4958 Jun 08 j 19:21	7°828'28	5°46'26	conjunction	-4950 Jun 22 j 13:25	20°850'19	9°17'49
minimum elong	-4958 Jun 08 j 19:08	7°828'27	5°46'34	minimum elong	-4950 Jun 22 j 13:05	20°850'18	9°18'00
retrograde	-4958 Sep 18 j 08:22	9°826'04		retrograde	-4950 Oct 02 j 07:46	22°857'23	
opposition	-4958 Dec 05 j 17:21	8°815'27	6°19'22	opposition	-4950 Dec 19 j 01:36	21°843'39	10°04'11
min. Earth dist.	-4958 Dec 08 j 20:37	8°811'02	35.83952 AU	min. Earth dist.	-4950 Dec 22 j 05:37	21°838'56	33.82294 AU
direct	-4957 Feb 25 j 12:00	7°802'06		direct	-4949 Mar 10 j 15:24	20°826'45	
max. Earth dist.	-4957 Jun 07 j 05:24	8°857'00	37.69851 AU	max. Earth dist.	-4949 Jun 21 j 03:07	22°831'34	35.66986 AU
conjunction	-4957 Jun 10 j 16:32	9°803'16	6°12'48	conjunction	-4949 Jun 24 j 15:44	22°838'28	9°43'55
minimum elong	-4957 Jun 10 j 16:19	9°803'15	6°12'58	minimum elong	-4949 Jun 24 j 15:23	22°838'26	9°44'08
retrograde	-4957 Sep 20 j 04:42	11°801'56		retrograde	-4949 Oct 04 j 11:16	24°846'50	
opposition	-4957 Dec 07 j 12:58	9°850'56	6°47'24	opposition	-4949 Dec 21 j 02:55	23°832'42	10°31'58
min. Earth dist.	-4957 Dec 10 j 16:06	9°846'28	35.58196 AU	min. Earth dist.	-4949 Dec 24 j 07:19	23°827'57	33.57821 AU
direct	-4956 Feb 27 j 09:48	8°837'07		direct	-4948 Mar 11 j 15:02	22°815'21	
max. Earth dist.	-4956 Jun 08 j 01:33	10°833'02	37.43941 AU	max. Earth dist.	-4948 Jun 22 j 06:55	24°821'35	35.42274 AU
conjunction	-4956 Jun 11 j 14:04	10°839'29	6°39'16	conjunction	-4948 Jun 25 j 18:57	24°828'30	10°09'50
minimum elong	-4956 Jun 11 j 13:50	10°839'28	6°39'25	minimum elong	-4948 Jun 25 j 18:36	24°828'28	10°10'02
retrograde	-4956 Sep 21 j 03:19	12°839'14		retrograde	-4948 Oct 05 j 13:10	26°838'11	
opposition	-4956 Dec 08 j 09:13	11°827'49	7°15'32	opposition	-4948 Dec 22 j 05:15	25°823'39	10°59'34
min. Earth dist.	-4956 Dec 11 j 12:49	11°823'19	35.32519 AU	min. Earth dist.	-4948 Dec 25 j 10:10	25°818'49	33.33442 AU
direct	-4955 Feb 28 j 04:47	10°813'33		direct	-4947 Mar 13 j 16:15	24°805'50	
max. Earth dist.	-4955 Jun 10 j 00:30	12°810'41	37.18114 AU	max. Earth dist.	-4947 Jun 24 j 10:18	26°813'23	35.17678 AU
conjunction	-4955 Jun 13 j 12:26	12°817'09	7°05'46	conjunction	-4947 Jun 27 j 22:48	26°820'25	10°35'32
minimum elong	-4955 Jun 13 j 12:11	12°817'07	7°05'56	minimum elong	-4947 Jun 27 j 22:25	26°820'23	10°35'45
retrograde	-4955 Sep 22 j 23:14	14°818'01		retrograde	-4947 Oct 07 j 18:32	28°831'26	
opposition	-4955 Dec 10 j 06:12	13°806'13	7°43'42	opposition	-4947 Dec 24 j 08:12	27°816'28	11°26'55
min. Earth dist.	-4955 Dec 13 j 10:12	13°801'39	35.06971 AU	min. Earth dist.	-4947 Dec 27 j 12:28	27°811'39	33.09206 AU
direct	-4954 Mar 02 j 00:53	11°851'29		direct	-4946 Mar 15 j 17:09	25°858'10	
max. Earth dist.	-4954 Jun 11 j 23:03	13°849'47	36.92460 AU	max. Earth dist.	-4946 Jun 26 j 15:03	28°807'07	34.93224 AU
conjunction	-4954 Jun 15 j 11:15	13°856'20	7°32'16	conjunction	-4946 Jun 30 j 03:30	28°814'13	11°00'56
minimum elong	-4954 Jun 15 j 10:58	13°856'19	7°32'26	minimum elong	-4946 Jun 30 j 03:07	28°814'11	11°01'09
retrograde	-4954 Jul 21 j 05:58	15°8		retrograde	-4946 Aug 29 j 10:06	0°II	
opposition	-4954 Sep 24 j 23:21	15°858'23		opposition	-4946 Oct 09 j 23:14	0°II26'35	
min. Earth dist.	-4954 Dec 02 j 13:34	15°R8		min. Earth dist.	-4946 Nov 21 j 15:41	30°R8	
direct	-4954 Dec 12 j 03:49	14°846'10	8°11'54	direct	-4946 Dec 26 j 12:12	29°811'10	11°53'57
max. Earth dist.	-4954 Dec 15 j 07:04	14°841'38	34.81635 AU	max. Earth dist.	-4946 Dec 29 j 17:19	29°806'16	32.85158 AU
conjunction	-4953 Mar 03 j 20:05	13°831'00		conjunction	-4945 Mar 17 j 18:46	27°852'23	
opposition	-4953 May 28 j 09:22	15°8		opposition	-4945 Jun 27 j 12:20	0°II	
min. Earth dist.	-4953 Jun 13 j 22:24	15°830'33	36.67001 AU	min. Earth dist.	-4945 Jun 28 j 21:09	0°II02'47	34.68999 AU



## Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 29

Attention, astronomical year style is used: The year -4945 in astronomical counting style is the year 4946 BCE in historical counting style.

conjunction	-4945 Jul 02 j 08:39	0°II09'52	11°26'00	minimum elong	-4937 Jul 19 j 05:28	16°II47'45	14°26'07
minimum elong	-4945 Jul 02 j 08:16	0°II09'50	11°26'14	retrograde	-4937 Oct 29 j 14:23	19°II12'57	
retrograde	-4945 Oct 12 j 06:13	2°II23'36		opposition	-4936 Jan 14 j 14:00	17°II53'51	15°31'13
opposition	-4945 Dec 28 j 16:48	1°II07'44	12°20'37	min. Earth dist.	-4936 Jan 17 j 11:47	17°II49'11	30.88311 AU
min. Earth dist.	-4945 Dec 31 j 20:43	1°II02'53	32.61370 AU	direct	-4936 Apr 04 j 07:29	16°II31'10	
	-4944 Feb 19 j 16:18	30°R8		max. Earth dist.	-4936 Jul 17 j 16:49	18°II55'28	32.71583 AU
direct	-4944 Mar 18 j 23:52	29°848'27					
	-4944 Apr 15 j 23:48	0°II		conjunction	-4936 Jul 20 j 18:12	19°II02'17	14°44'41
max. Earth dist.	-4944 Jun 30 j 02:48	2°II00'14	34.45054 AU	minimum elong	-4936 Jul 20 j 17:49	19°II02'15	14°44'56
				retrograde	-4936 Oct 31 j 04:37	21°II28'51	
conjunction	-4944 Jul 03 j 14:40	2°II07'26	11°50'40	opposition	-4935 Jan 16 j 02:45	20°II09'23	15°51'04
minimum elong	-4944 Jul 03 j 14:16	2°II07'24	11°50'53	min. Earth dist.	-4935 Jan 18 j 22:31	20°II04'49	30.69107 AU
retrograde	-4944 Oct 13 j 14:25	4°II22'32		direct	-4935 Apr 06 j 20:42	18°II46'19	
opposition	-4944 Dec 29 j 22:11	3°II06'12	12°46'51	max. Earth dist.	-4935 Jul 20 j 06:21	21°II12'03	32.52359 AU
min. Earth dist.	-4943 Jan 02 j 02:36	3°II01'18	32.37926 AU				
direct	-4943 Mar 21 j 03:50	1°II46'25		conjunction	-4935 Jul 23 j 07:18	21°II18'53	15°02'29
max. Earth dist.	-4943 Jul 02 j 11:25	3°II59'48	34.21493 AU	minimum elong	-4935 Jul 23 j 06:56	21°II18'50	15°02'45
				retrograde	-4935 Nov 02 j 20:09	23°II46'49	
conjunction	-4943 Jul 05 j 21:28	4°II06'54	12°14'51	opposition	-4934 Jan 18 j 16:37	22°II26'58	16°09'47
minimum elong	-4943 Jul 05 j 21:04	4°II06'52	12°15'06	min. Earth dist.	-4934 Jan 21 j 11:56	22°II22'25	30.50455 AU
retrograde	-4943 Oct 15 j 21:40	6°II23'24		direct	-4934 Apr 09 j 08:29	21°II03'31	
opposition	-4942 Jan 01 j 04:37	5°II06'37	13°12'33	max. Earth dist.	-4934 Jul 22 j 22:47	23°II30'49	32.33717 AU
min. Earth dist.	-4942 Jan 04 j 07:38	5°II01'46	32.14902 AU				
direct	-4942 Mar 23 j 10:29	3°II46'22		conjunction	-4934 Jul 25 j 21:04	23°II37'27	15°19'10
max. Earth dist.	-4942 Jul 04 j 18:41	6°II01'10	33.98397 AU	minimum elong	-4934 Jul 25 j 20:42	23°II37'25	15°19'25
				retrograde	-4934 Nov 05 j 11:04	26°II06'44	
conjunction	-4942 Jul 08 j 04:44	6°II08'21	12°38'30	opposition	-4933 Jan 21 j 07:21	24°II46'30	16°27'16
minimum elong	-4942 Jul 08 j 04:20	6°II08'19	12°38'43	min. Earth dist.	-4933 Jan 24 j 00:41	24°II42'03	30.32380 AU
retrograde	-4942 Oct 18 j 07:42	8°II26'16		direct	-4933 Apr 11 j 22:54	23°II22'40	
opposition	-4941 Jan 03 j 11:52	7°II09'03	13°37'38	max. Earth dist.	-4933 Jul 25 j 13:51	25°II51'18	32.15705 AU
min. Earth dist.	-4941 Jan 06 j 14:13	7°II04'13	31.92397 AU				
direct	-4941 Mar 25 j 16:34	5°II48'21		conjunction	-4933 Jul 28 j 11:30	25°II57'56	15°34'38
max. Earth dist.	-4941 Jul 07 j 05:11	8°II04'48	33.75840 AU	minimum elong	-4933 Jul 28 j 11:09	25°II57'54	15°34'54
				retrograde	-4933 Nov 08 j 04:59	28°II28'29	
conjunction	-4941 Jul 10 j 13:01	8°II11'51	13°01'30	opposition	-4932 Jan 23 j 22:41	27°II07'51	16°43'25
minimum elong	-4941 Jul 10 j 12:37	8°II11'49	13°01'44	min. Earth dist.	-4932 Jan 26 j 14:42	27°II03'29	30.14964 AU
retrograde	-4941 Oct 20 j 16:31	10°II31'12		direct	-4932 Apr 13 j 13:42	25°II43'38	
opposition	-4940 Jan 05 j 20:00	9°II13'35	14°02'01	max. Earth dist.	-4932 Jul 27 j 08:10	28°II13'48	31.98392 AU
min. Earth dist.	-4940 Jan 08 j 21:30	9°II08'46	31.70447 AU				
direct	-4940 Mar 26 j 23:51	7°II52'27		conjunction	-4932 Jul 30 j 02:43	28°II20'11	15°48'49
max. Earth dist.	-4940 Jul 08 j 14:38	10°II10'25	33.53871 AU	minimum elong	-4932 Jul 30 j 02:24	28°II20'09	15°49'04
					-4932 Sep 15 j 03:06	0°S	
conjunction	-4940 Jul 11 j 21:58	10°II17'30	13°23'48	retrograde	-4932 Nov 09 j 20:41	0°S51'58	
minimum elong	-4940 Jul 11 j 21:33	10°II17'28	13°24'02		-4931 Jan 07 j 14:15	30°RII	
retrograde	-4940 Oct 22 j 03:23	12°II38'18		opposition	-4931 Jan 25 j 15:06	29°II30'57	16°58'08
opposition	-4939 Jan 07 j 04:58	11°II20'18	14°25'39	min. Earth dist.	-4931 Jan 28 j 05:29	29°II26'41	29.98257 AU
min. Earth dist.	-4939 Jan 10 j 04:57	11°II15'34	31.49085 AU	direct	-4931 Apr 16 j 06:04	28°II06'23	
direct	-4939 Mar 29 j 06:54	9°II58'46			-4931 Jul 13 j 12:12	0°S	
max. Earth dist.	-4939 Jul 11 j 02:11	12°II18'21	33.32467 AU	max. Earth dist.	-4931 Jul 30 j 01:12	0°S37'49	31.81865 AU
conjunction	-4939 Jul 14 j 07:51	12°II25'22	13°45'20	conjunction	-4931 Aug 01 j 18:18	0°S44'07	16°01'36
minimum elong	-4939 Jul 14 j 07:27	12°II25'19	13°45'36	minimum elong	-4931 Aug 01 j 18:00	0°S44'06	16°01'53
retrograde	-4939 Oct 24 j 12:51	14°II47'37		retrograde	-4931 Nov 12 j 14:39	3°S17'05	
opposition	-4938 Jan 09 j 15:04	13°II29'15	14°48'26	opposition	-4930 Jan 28 j 08:12	1°S55'43	17°11'20
min. Earth dist.	-4938 Jan 12 j 14:49	13°II24'30	31.28282 AU	min. Earth dist.	-4930 Jan 30 j 20:01	1°S51'35	29.82371 AU
direct	-4938 Mar 31 j 14:17	12°II07'20		direct	-4930 Apr 18 j 22:05	0°S30'47	
max. Earth dist.	-4938 Jul 13 j 14:06	14°II28'30	33.11639 AU	max. Earth dist.	-4930 Aug 01 j 20:49	3°S03'39	31.66212 AU
conjunction	-4938 Jul 16 j 18:28	14°II35'28	14°06'02	conjunction	-4930 Aug 04 j 10:40	3°S09'40	16°12'54
minimum elong	-4938 Jul 16 j 18:04	14°II35'25	14°06'17	minimum elong	-4930 Aug 04 j 10:24	3°S09'39	16°13'10
retrograde	-4938 Oct 27 j 01:52	16°II59'10		retrograde	-4930 Nov 15 j 07:24	5°S43'47	
opposition	-4937 Jan 12 j 02:01	15°II40'27	15°10'19	opposition	-4929 Jan 31 j 02:14	4°S22'03	17°22'53
min. Earth dist.	-4937 Jan 14 j 23:42	15°II35'48	31.08035 AU	min. Earth dist.	-4929 Feb 02 j 12:20	4°S18'02	29.67382 AU
direct	-4937 Apr 02 j 22:40	14°II18'09		direct	-4929 Apr 21 j 14:30	2°S56'50	
max. Earth dist.	-4937 Jul 16 j 02:29	16°II40'51	32.91341 AU	max. Earth dist.	-4929 Aug 04 j 15:52	5°S30'57	31.51538 AU
conjunction	-4937 Jul 19 j 05:52	16°II47'47	14°25'51	conjunction	-4929 Aug 07 j 03:20	5°S36'48	16°22'38



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 30

Attention, astronomical year style is used: The year -4929 in astronomical counting style is the year 4930 BCE in historical counting style.

minimum elong	-4929 Aug 07 j 03:06	5° $\overline{36}$ '46	16°22'54	min. Earth dist.	-4920 Feb 25 j 09:57	27° $\overline{18}$ '52	28.76694 AU
retrograde	-4929 Nov 18 j 03:03	8° $\overline{11}$ '59		direct	-4920 May 14 j 01:13	25° $\overline{54}$ '56	
opposition	-4928 Feb 02 j 20:49	6° $\overline{49}$ '58	17°32'42	max. Earth dist.	-4920 Aug 27 j 22:21	28° $\overline{37}$ '20	30.65114 AU
min. Earth dist.	-4928 Feb 05 j 03:23	6° $\overline{46}$ '10	29.53367 AU				
direct	-4928 Apr 23 j 07:48	5° $\overline{24}$ '29		conjunction	-4920 Aug 29 j 06:36	28° $\overline{40}$ '37	16°30'13
max. Earth dist.	-4928 Aug 06 j 12:19	7° $\overline{59}$ '53	31.37873 AU	minimum elong	-4920 Aug 29 j 06:42	28° $\overline{40}$ '38	16°30'28
					-4920 Oct 02 j 01:25	0° $\overline{0}$	
conjunction	-4928 Aug 08 j 20:48	8° $\overline{05}$ '28	16°30'42	retrograde	-4920 Dec 10 j 21:23	1° $\overline{22}$ '15	
minimum elong	-4928 Aug 08 j 20:36	8° $\overline{05}$ '27	16°30'57		-4919 Feb 25 j 05:44	30° $\overline{R}$ $\overline{5}$	
retrograde	-4928 Nov 19 j 20:17	10° $\overline{41}$ '42		opposition	-4919 Feb 26 j 00:03	29° $\overline{58}$ '43	17°34'01
opposition	-4927 Feb 04 j 16:12	9° $\overline{19}$ '25	17°40'42	min. Earth dist.	-4919 Feb 27 j 05:22	29° $\overline{56}$ '39	28.71471 AU
min. Earth dist.	-4927 Feb 06 j 21:08	9° $\overline{15}$ '44	29.40357 AU	direct	-4919 May 16 j 23:46	28° $\overline{32}$ '26	
direct	-4927 Apr 26 j 00:36	7° $\overline{53}$ '44			-4919 Jul 29 j 21:43	0° $\overline{0}$	
max. Earth dist.	-4927 Aug 09 j 09:28	10° $\overline{30}$ '22	31.25268 AU	max. Earth dist.	-4919 Aug 30 j 22:53	1° $\overline{15}$ '19	30.60565 AU
conjunction	-4927 Aug 11 j 14:41	10° $\overline{35}$ '40	16°37'03	conjunction	-4919 Sep 01 j 02:46	1° $\overline{18}$ '10	16°21'38
minimum elong	-4927 Aug 11 j 14:32	10° $\overline{35}$ '39	16°37'19	minimum elong	-4919 Sep 01 j 02:57	1° $\overline{18}$ '11	16°21'53
retrograde	-4927 Nov 22 j 16:06	13° $\overline{12}$ '53		retrograde	-4919 Dec 13 j 18:14	3° $\overline{59}$ '58	
opposition	-4926 Feb 07 j 12:16	11° $\overline{50}$ '23	17°46'50	opposition	-4918 Feb 28 j 23:42	2° $\overline{36}$ '21	17°23'55
min. Earth dist.	-4926 Feb 09 j 13:31	11° $\overline{46}$ '57	29.28363 AU	min. Earth dist.	-4918 Mar 02 j 02:25	2° $\overline{34}$ '28	28.67308 AU
direct	-4926 Apr 28 j 19:43	10° $\overline{24}$ '33		direct	-4918 May 19 j 23:07	1° $\overline{10}$ '05	
max. Earth dist.	-4926 Aug 12 j 06:23	13° $\overline{02}$ '17	31.13691 AU				
				conjunction	-4918 Sep 03 j 22:35	3° $\overline{55}$ '43	16°11'06
conjunction	-4926 Aug 14 j 08:58	13° $\overline{07}$ '21	16°41'39	minimum elong	-4918 Sep 03 j 22:45	3° $\overline{55}$ '44	16°11'20
minimum elong	-4926 Aug 14 j 08:50	13° $\overline{07}$ '20	16°41'54	max. Earth dist.	-4918 Sep 02 j 21:41	3° $\overline{53}$ '10	30.57155 AU
retrograde	-4926 Nov 25 j 12:10	15° $\overline{45}$ '30		retrograde	-4918 Dec 16 j 17:14	6° $\overline{37}$ '36	
opposition	-4925 Feb 10 j 09:07	14° $\overline{22}$ '48	17°51'02	opposition	-4917 Mar 03 j 23:11	5° $\overline{13}$ '53	17°11'44
min. Earth dist.	-4925 Feb 12 j 08:34	14° $\overline{19}$ '29	29.17371 AU	min. Earth dist.	-4917 Mar 04 j 21:20	5° $\overline{12}$ '20	28.64284 AU
direct	-4925 May 01 j 12:51	12° $\overline{56}$ '50		direct	-4917 May 22 j 23:00	3° $\overline{47}$ '40	
max. Earth dist.	-4925 Aug 15 j 04:58	15° $\overline{35}$ '42	31.03138 AU				
				conjunction	-4917 Sep 06 j 18:30	6° $\overline{33}$ '06	15°58'39
conjunction	-4925 Aug 17 j 03:50	15° $\overline{40}$ '25	16°44'25	minimum elong	-4917 Sep 06 j 18:46	6° $\overline{33}$ '07	15°58'52
minimum elong	-4925 Aug 17 j 03:46	15° $\overline{40}$ '24	16°44'41	max. Earth dist.	-4917 Sep 05 j 21:56	6° $\overline{31}$ '00	30.54931 AU
retrograde	-4925 Nov 28 j 08:32	18° $\overline{19}$ '24		retrograde	-4917 Dec 19 j 12:40	9° $\overline{14}$ '57	
opposition	-4924 Feb 13 j 06:19	16° $\overline{56}$ '32	17°53'16	opposition	-4916 Mar 05 j 22:40	7° $\overline{51}$ '13	16°57'28
min. Earth dist.	-4924 Feb 15 j 02:21	16° $\overline{53}$ '27	29.07341 AU	min. Earth dist.	-4916 Mar 06 j 18:14	7° $\overline{49}$ '50	28.62448 AU
direct	-4924 May 03 j 10:05	15° $\overline{30}$ '28		direct	-4916 May 24 j 21:20	6° $\overline{25}$ '05	
max. Earth dist.	-4924 Aug 17 j 02:14	18° $\overline{10}$ '12	30.93566 AU				
				conjunction	-4916 Sep 08 j 14:13	9° $\overline{10}$ '12	15°44'16
conjunction	-4924 Aug 18 j 23:05	18° $\overline{14}$ '44	16°45'21	minimum elong	-4916 Sep 08 j 14:28	9° $\overline{10}$ '14	15°44'29
minimum elong	-4924 Aug 18 j 23:01	18° $\overline{14}$ '43	16°45'36	max. Earth dist.	-4916 Sep 07 j 21:17	9° $\overline{08}$ '28	30.53961 AU
retrograde	-4924 Nov 30 j 06:22	20° $\overline{54}$ '28		retrograde	-4916 Dec 21 j 09:53	11° $\overline{51}$ '56	
opposition	-4923 Feb 15 j 04:19	19° $\overline{31}$ '26	17°53'31	opposition	-4915 Mar 08 j 22:06	10° $\overline{28}$ '12	16°41'08
min. Earth dist.	-4923 Feb 16 j 22:04	19° $\overline{28}$ '31	28.98266 AU	min. Earth dist.	-4915 Mar 09 j 12:47	10° $\overline{27}$ '10	28.61838 AU
direct	-4923 May 06 j 05:58	18° $\overline{05}$ '18		direct	-4915 May 27 j 21:01	9° $\overline{02}$ '13	
max. Earth dist.	-4923 Aug 20 j 01:55	20° $\overline{45}$ '59	30.84974 AU				
				conjunction	-4915 Sep 11 j 09:39	11° $\overline{46}$ '55	15°28'01
conjunction	-4923 Aug 21 j 18:41	20° $\overline{50}$ '07	16°44'26	minimum elong	-4915 Sep 11 j 09:58	11° $\overline{46}$ '57	15°28'13
minimum elong	-4923 Aug 21 j 18:42	20° $\overline{50}$ '07	16°44'41	max. Earth dist.	-4915 Sep 10 j 20:41	11° $\overline{45}$ '36	30.54239 AU
retrograde	-4923 Dec 03 j 02:58	23° $\overline{30}$ '29		retrograde	-4915 Dec 24 j 06:41	14° $\overline{28}$ '27	
opposition	-4922 Feb 18 j 02:52	22° $\overline{07}$ '20	17°51'44	opposition	-4914 Mar 11 j 21:37	13° $\overline{04}$ '46	16°22'48
min. Earth dist.	-4922 Feb 19 j 17:34	22° $\overline{04}$ '37	28.90118 AU	min. Earth dist.	-4914 Mar 12 j 09:24	13° $\overline{03}$ '57	28.62457 AU
direct	-4922 May 09 j 03:59	20° $\overline{41}$ '08		direct	-4914 May 30 j 18:10	11° $\overline{38}$ '59	
max. Earth dist.	-4922 Aug 22 j 23:45	23° $\overline{22}$ '26	30.77355 AU				
				conjunction	-4914 Sep 14 j 04:55	14° $\overline{23}$ '10	15°09'56
conjunction	-4922 Aug 24 j 14:30	23° $\overline{26}$ '22	16°41'36	minimum elong	-4914 Sep 14 j 05:14	14° $\overline{23}$ '12	15°10'09
minimum elong	-4922 Aug 24 j 14:31	23° $\overline{26}$ '22	16°41'51	max. Earth dist.	-4914 Sep 13 j 20:03	14° $\overline{22}$ '15	30.55769 AU
retrograde	-4922 Dec 06 j 01:55	26° $\overline{07}$ '17			-4914 Sep 29 j 09:12	15° $\overline{0}$	
opposition	-4921 Feb 21 j 01:39	24° $\overline{43}$ '59	17°47'54	retrograde	-4914 Dec 27 j 02:13	17° $\overline{04}$ '24	
min. Earth dist.	-4921 Feb 22 j 13:23	24° $\overline{41}$ '29	28.82931 AU	opposition	-4913 Mar 14 j 20:41	15° $\overline{40}$ '49	16°02'32
direct	-4921 May 12 j 01:18	23° $\overline{17}$ '45		min. Earth dist.	-4913 Mar 15 j 03:56	15° $\overline{40}$ '18	28.64269 AU
max. Earth dist.	-4921 Aug 26 j 00:05	25° $\overline{59}$ '46	30.70727 AU		-4913 Apr 09 j 05:57	15° $\overline{R}$ $\overline{0}$	
				direct	-4913 Jun 02 j 17:49	14° $\overline{15}$ '14	
conjunction	-4921 Aug 27 j 10:35	26° $\overline{03}$ '17	16°36'53		-4913 Jul 24 j 08:49	15° $\overline{0}$	
minimum elong	-4921 Aug 27 j 10:41	26° $\overline{03}$ '18	16°37'08				
retrograde	-4921 Dec 08 j 23:09	28° $\overline{44}$ '37		conjunction	-4913 Sep 16 j 23:50	16° $\overline{58}$ '49	14°50'07
opposition	-4920 Feb 24 j 00:50	27° $\overline{21}$ '11	17°42'00	minimum elong	-4913 Sep 17 j 00:12	16° $\overline{58}$ '51	14°50'19



# Planetary Phenomena of Pluto from -5400 through -4900 (UT), Astrodienst AG 7-Dez-2017 14:34, page 31

Attention, astronomical year style is used: The year -4913 in astronomical counting style is the year 4914 BCE in historical counting style.

max. Earth dist.	-4913 Sep 16 j 18:08	16°♏58'14	30.58482 AU	max. Earth dist.	-4905 Oct 07 j 12:25	7°♐07'06	31.17386 AU
retrograde	-4913 Dec 29 j 21:52	19°♏39'40		retrograde	-4904 Jan 18 j 19:32	9°♐39'47	
opposition	-4912 Mar 16 j 19:41	18°♏16'12	15°40'24	opposition	-4904 Apr 06 j 19:33	8°♐17'37	11°48'45
min. Earth dist.	-4912 Mar 16 j 23:56	18°♏15'54	28.67227 AU	min. Earth dist.	-4904 Apr 05 j 20:23	8°♐19'11	29.27086 AU
direct	-4912 Jun 04 j 14:39	16°♏50'52		direct	-4904 Jun 25 j 15:56	6°♐54'40	
conjunction	-4912 Sep 18 j 18:28	19°♏33'44	14°28'38	conjunction	-4904 Oct 08 j 05:10	9°♐28'55	10°47'45
minimum elong	-4912 Sep 18 j 18:50	19°♏33'46	14°28'50	minimum elong	-4904 Oct 08 j 05:34	9°♐28'57	10°47'51
max. Earth dist.	-4912 Sep 18 j 17:06	19°♏33'36	30.62332 AU	max. Earth dist.	-4904 Oct 09 j 06:02	9°♐31'20	31.29197 AU
retrograde	-4912 Dec 31 j 16:52	22°♏14'07		retrograde	-4903 Jan 20 j 10:05	12°♐02'39	
opposition	-4911 Mar 19 j 18:21	20°♏50'47	15°16'32	opposition	-4903 Apr 09 j 13:50	10°♐40'42	11°14'27
min. Earth dist.	-4911 Mar 19 j 18:52	20°♏50'45	28.71260 AU	min. Earth dist.	-4903 Apr 08 j 12:00	10°♐42'27	29.39052 AU
direct	-4911 Jun 07 j 13:08	19°♏25'44		direct	-4903 Jun 28 j 10:05	9°♐18'09	
conjunction	-4911 Sep 21 j 12:41	22°♏07'47	14°05'35	conjunction	-4903 Oct 10 j 18:37	11°♐51'04	10°15'22
minimum elong	-4911 Sep 21 j 13:06	22°♏07'49	14°05'45	minimum elong	-4903 Oct 10 j 19:01	11°♐51'06	10°15'28
max. Earth dist.	-4911 Sep 21 j 13:57	22°♏07'55	30.67251 AU	max. Earth dist.	-4903 Oct 11 j 22:55	11°♐53'48	31.42065 AU
retrograde	-4910 Jan 03 j 12:41	24°♏47'37		retrograde	-4902 Jan 22 j 23:32	14°♐23'45	
opposition	-4910 Mar 22 j 16:46	23°♏24'25	14°51'00	min. Earth dist.	-4902 Apr 11 j 01:17	13°♐04'05	29.52059 AU
min. Earth dist.	-4910 Mar 22 j 13:51	23°♏24'37	28.76342 AU	opposition	-4902 Apr 12 j 07:12	13°♐02'05	10°39'18
direct	-4910 Jun 10 j 10:03	21°♏59'38		direct	-4902 Jul 01 j 04:42	11°♐39'55	
conjunction	-4910 Sep 24 j 06:33	24°♏40'48	13°41'02	conjunction	-4902 Oct 13 j 07:13	14°♐11'31	9°42'15
minimum elong	-4910 Sep 24 j 06:56	24°♏40'51	13°41'12	minimum elong	-4902 Oct 13 j 07:36	14°♐11'33	9°42'21
max. Earth dist.	-4910 Sep 24 j 12:11	24°♏41'22	30.73198 AU	max. Earth dist.	-4902 Oct 14 j 14:20	14°♐14'30	31.55943 AU
retrograde	-4909 Jan 06 j 06:25	27°♏19'58		retrograde	-4901 Jan 25 j 11:53	16°♐43'08	
opposition	-4909 Mar 25 j 14:43	25°♏56'56	14°23'56	opposition	-4901 Apr 14 j 23:56	15°♐21'45	10°03'24
min. Earth dist.	-4909 Mar 25 j 08:49	25°♏57'20	28.82399 AU	min. Earth dist.	-4901 Apr 13 j 15:09	15°♐23'56	29.66078 AU
direct	-4909 Jun 13 j 08:42	24°♏32'27		direct	-4901 Jul 03 j 20:08	14°♐00'01	
conjunction	-4909 Sep 26 j 23:52	27°♏12'37	13°15'06	conjunction	-4901 Oct 15 j 19:20	16°♐30'16	9°08'29
minimum elong	-4909 Sep 27 j 00:17	27°♏12'40	13°15'15	minimum elong	-4901 Oct 15 j 19:42	16°♐30'19	9°08'33
max. Earth dist.	-4909 Sep 27 j 07:38	27°♏13'24	30.80119 AU	max. Earth dist.	-4901 Oct 17 j 06:14	16°♐33'36	31.70786 AU
retrograde	-4908 Jan 09 j 01:34	29°♏51'03		retrograde	-4900 Jan 27 j 22:38	19°♐00'48	
opposition	-4908 Mar 27 j 11:59	28°♏28'10	13°55'24	min. Earth dist.	-4900 Apr 15 j 03:57	17°♐42'06	29.81023 AU
min. Earth dist.	-4908 Mar 27 j 02:13	28°♏28'51	28.89415 AU	opposition	-4900 Apr 16 j 15:44	17°♐39'44	9°26'54
direct	-4908 Jun 15 j 05:08	27°♏03'58		direct	-4900 Jul 05 j 12:20	16°♐18'26	
conjunction	-4908 Sep 28 j 16:48	29°♏43'06	12°47'52	conjunction	-4900 Oct 17 j 06:36	18°♐47'20	8°34'12
minimum elong	-4908 Sep 28 j 17:13	29°♏43'08	12°48'01	minimum elong	-4900 Oct 17 j 06:57	18°♐47'22	8°34'17
max. Earth dist.	-4908 Sep 29 j 04:44	29°♏44'17	30.87988 AU	max. Earth dist.	-4900 Oct 18 j 19:32	18°♐50'50	31.86510 AU
retrograde	-4907 Jan 10 j 18:14	2°♐20'42					
opposition	-4907 Mar 30 j 08:58	0°♐57'59	13°25'31				
min. Earth dist.	-4907 Mar 29 j 20:49	0°♐58'49	28.97365 AU				
direct	-4907 May 08 j 07:43	30°♐♏					
	-4907 Jun 18 j 02:37	29°♏34'05					
	-4907 Jul 27 j 10:59	0°♐					
conjunction	-4907 Oct 01 j 08:49	2°♐12'03	12°19'26				
minimum elong	-4907 Oct 01 j 09:15	2°♐12'06	12°19'34				
max. Earth dist.	-4907 Oct 01 j 23:07	2°♐13'28	30.96811 AU				
retrograde	-4906 Jan 13 j 12:45	4°♐48'47					
opposition	-4906 Apr 02 j 05:14	3°♐26'13	12°54'23				
min. Earth dist.	-4906 Apr 01 j 12:47	3°♐27'20	29.06276 AU				
direct	-4906 Jun 21 j 00:08	2°♐02'37					
conjunction	-4906 Oct 04 j 00:23	4°♐39'24	11°49'52				
minimum elong	-4906 Oct 04 j 00:48	4°♐39'26	11°50'00				
max. Earth dist.	-4906 Oct 04 j 18:46	4°♐41'12	31.06593 AU				
retrograde	-4905 Jan 16 j 03:57	7°♐15'10					
min. Earth dist.	-4905 Apr 04 j 06:07	5°♐54'03	29.16171 AU				
opposition	-4905 Apr 05 j 00:46	5°♐52'47	12°22'06				
direct	-4905 Jun 23 j 19:49	4°♐29'30					
conjunction	-4905 Oct 06 j 15:09	7°♐05'01	11°19'17				
minimum elong	-4905 Oct 06 j 15:35	7°♐05'04	11°19'23				



# Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 1

Attention, astronomical year style is used: The year -4900 in astronomical counting style is the year 4901 BCE in historical counting style.

retrograde	-4900 Jan 27 j 22:38	19° $\mathring{\text{M}}$ 00'48		conjunction	-4893 Nov 01 j 18:51	3° $\mathring{\text{A}}$ 56'24	4°26'56
min. Earth dist.	-4900 Apr 15 j 03:57	17° $\mathring{\text{M}}$ 42'06	29.81023 AU	minimum elong	-4893 Nov 01 j 19:02	3° $\mathring{\text{A}}$ 56'25	4°26'55
opposition	-4900 Apr 16 j 15:44	17° $\mathring{\text{M}}$ 39'44	9°26'54	max. Earth dist.	-4893 Nov 03 j 23:57	4° $\mathring{\text{A}}$ 01'09	33.15436 AU
direct	-4900 Jul 05 j 12:20	16° $\mathring{\text{M}}$ 18'26		retrograde	-4892 Feb 14 j 01:05	6° $\mathring{\text{A}}$ 17'30	
				min. Earth dist.	-4892 May 02 j 12:42	5° $\mathring{\text{A}}$ 02'20	31.26227 AU
conjunction	-4900 Oct 17 j 06:36	18° $\mathring{\text{M}}$ 47'20	8°34'12	opposition	-4892 May 04 j 19:39	4° $\mathring{\text{A}}$ 58'51	4°24'58
minimum elong	-4900 Oct 17 j 06:57	18° $\mathring{\text{M}}$ 47'22	8°34'17	direct	-4892 Jul 23 j 18:29	3° $\mathring{\text{A}}$ 40'49	
max. Earth dist.	-4900 Oct 18 j 19:32	18° $\mathring{\text{M}}$ 50'50	31.86510 AU				
retrograde	-4899 Jan 29 j 11:32	21° $\mathring{\text{M}}$ 16'46		conjunction	-4892 Nov 03 j 00:37	5° $\mathring{\text{A}}$ 58'34	3°51'30
min. Earth dist.	-4899 Apr 17 j 15:55	19° $\mathring{\text{M}}$ 58'35	29.96846 AU	minimum elong	-4892 Nov 03 j 00:47	5° $\mathring{\text{A}}$ 58'34	3°51'29
opposition	-4899 Apr 19 j 07:01	19° $\mathring{\text{M}}$ 56'01	8°49'54	max. Earth dist.	-4892 Nov 05 j 08:44	6° $\mathring{\text{A}}$ 03'32	33.36180 AU
direct	-4899 Jul 08 j 01:46	18° $\mathring{\text{M}}$ 35'09		retrograde	-4891 Feb 15 j 04:36	8° $\mathring{\text{A}}$ 18'27	
				min. Earth dist.	-4891 May 04 j 19:28	7° $\mathring{\text{A}}$ 03'42	31.47125 AU
conjunction	-4899 Oct 19 j 17:18	21° $\mathring{\text{M}}$ 02'42	7°59'28	opposition	-4891 May 07 j 04:34	7° $\mathring{\text{A}}$ 00'06	3°47'15
minimum elong	-4899 Oct 19 j 17:38	21° $\mathring{\text{M}}$ 02'44	7°59'31	direct	-4891 Jul 26 j 05:09	5° $\mathring{\text{A}}$ 42'27	
max. Earth dist.	-4899 Oct 21 j 09:59	21° $\mathring{\text{M}}$ 06'31	32.03045 AU				
retrograde	-4898 Jan 31 j 21:22	23° $\mathring{\text{M}}$ 31'00		conjunction	-4891 Nov 05 j 05:28	7° $\mathring{\text{A}}$ 58'50	3°16'13
min. Earth dist.	-4898 Apr 20 j 04:30	22° $\mathring{\text{M}}$ 13'16	30.13444 AU	minimum elong	-4891 Nov 05 j 05:36	7° $\mathring{\text{A}}$ 58'51	3°16'11
opposition	-4898 Apr 21 j 21:34	22° $\mathring{\text{M}}$ 10'35	8°12'30	max. Earth dist.	-4891 Nov 07 j 14:54	8° $\mathring{\text{A}}$ 03'53	33.57539 AU
direct	-4898 Jul 10 j 17:01	20° $\mathring{\text{M}}$ 50'10		retrograde	-4890 Feb 17 j 10:26	10° $\mathring{\text{A}}$ 17'33	
				min. Earth dist.	-4890 May 07 j 00:42	9° $\mathring{\text{A}}$ 03'17	31.68676 AU
conjunction	-4898 Oct 22 j 03:19	23° $\mathring{\text{M}}$ 16'19	7°24'24	opposition	-4890 May 09 j 12:42	8° $\mathring{\text{A}}$ 59'31	3°09'45
minimum elong	-4898 Oct 22 j 03:38	23° $\mathring{\text{M}}$ 16'21	7°24'28	direct	-4890 Jul 28 j 12:13	7° $\mathring{\text{A}}$ 42'17	
max. Earth dist.	-4898 Oct 23 j 21:24	23° $\mathring{\text{M}}$ 20'14	32.20301 AU				
retrograde	-4897 Feb 03 j 09:24	25° $\mathring{\text{M}}$ 43'27		conjunction	-4890 Nov 07 j 09:55	9° $\mathring{\text{A}}$ 57'21	2°41'10
min. Earth dist.	-4897 Apr 22 j 14:43	24° $\mathring{\text{M}}$ 26'15	30.30752 AU	minimum elong	-4890 Nov 07 j 10:01	9° $\mathring{\text{A}}$ 57'21	2°41'08
opposition	-4897 Apr 24 j 11:05	24° $\mathring{\text{M}}$ 23'22	7°34'48	max. Earth dist.	-4890 Nov 09 j 22:29	10° $\mathring{\text{A}}$ 02'38	33.79510 AU
direct	-4897 Jul 13 j 05:40	23° $\mathring{\text{M}}$ 03'22		retrograde	-4889 Feb 19 j 13:27	12° $\mathring{\text{A}}$ 14'55	
				min. Earth dist.	-4889 May 09 j 06:45	11° $\mathring{\text{A}}$ 01'02	31.90834 AU
conjunction	-4897 Oct 24 j 12:47	25° $\mathring{\text{M}}$ 28'09	6°49'06	opposition	-4889 May 11 j 19:55	10° $\mathring{\text{A}}$ 57'13	2°32'33
minimum elong	-4897 Oct 24 j 13:04	25° $\mathring{\text{M}}$ 28'11	6°49'07	direct	-4889 Jul 30 j 19:52	9° $\mathring{\text{A}}$ 40'25	
max. Earth dist.	-4897 Oct 26 j 10:02	25° $\mathring{\text{M}}$ 32'20	32.38198 AU				
retrograde	-4896 Feb 05 j 18:17	27° $\mathring{\text{M}}$ 54'07		conjunction	-4889 Nov 09 j 13:34	11° $\mathring{\text{A}}$ 54'11	2°06'23
min. Earth dist.	-4896 Apr 24 j 02:30	26° $\mathring{\text{M}}$ 37'16	30.48688 AU	minimum elong	-4889 Nov 09 j 13:39	11° $\mathring{\text{A}}$ 54'11	2°06'20
opposition	-4896 Apr 26 j 00:06	26° $\mathring{\text{M}}$ 34'20	6°56'55	max. Earth dist.	-4889 Nov 12 j 03:05	11° $\mathring{\text{A}}$ 59'30	34.02054 AU
direct	-4896 Jul 14 j 18:00	25° $\mathring{\text{M}}$ 14'45		retrograde	-4888 Feb 21 j 19:05	14° $\mathring{\text{A}}$ 10'37	
				min. Earth dist.	-4888 May 10 j 10:20	12° $\mathring{\text{A}}$ 57'16	32.13559 AU
conjunction	-4896 Oct 25 j 21:22	27° $\mathring{\text{M}}$ 38'08	6°13'37	opposition	-4888 May 13 j 02:29	12° $\mathring{\text{A}}$ 53'17	1°55'41
minimum elong	-4896 Oct 25 j 21:38	27° $\mathring{\text{M}}$ 38'09	6°13'39	direct	-4888 Aug 01 j 01:08	11° $\mathring{\text{A}}$ 36'55	
max. Earth dist.	-4896 Oct 27 j 20:08	27° $\mathring{\text{M}}$ 42'25	32.56686 AU				
	-4895 Jan 24 j 15:01	0° $\mathring{\text{A}}$		conjunction	-4888 Nov 10 j 16:32	13° $\mathring{\text{A}}$ 49'26	1°31'55
retrograde	-4895 Feb 07 j 04:24	0° $\mathring{\text{A}}$ 02'53		minimum elong	-4888 Nov 10 j 16:35	13° $\mathring{\text{A}}$ 49'27	1°31'53
	-4895 Feb 20 j 20:17	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$		max. Earth dist.	-4888 Nov 13 j 08:45	13° $\mathring{\text{A}}$ 54'57	34.25097 AU
min. Earth dist.	-4895 Apr 26 j 11:18	28° $\mathring{\text{M}}$ 46'33	30.67208 AU	retrograde	-4887 Feb 22 j 22:41	16° $\mathring{\text{A}}$ 04'47	
opposition	-4895 Apr 28 j 12:13	28° $\mathring{\text{M}}$ 43'24	6°18'54	min. Earth dist.	-4887 May 12 j 15:39	14° $\mathring{\text{A}}$ 51'49	32.36777 AU
direct	-4895 Jul 17 j 08:05	27° $\mathring{\text{M}}$ 24'13		opposition	-4887 May 15 j 08:34	14° $\mathring{\text{A}}$ 47'49	1°19'13
				direct	-4887 Aug 03 j 05:57	13° $\mathring{\text{A}}$ 31'54	
conjunction	-4895 Oct 28 j 05:19	29° $\mathring{\text{M}}$ 46'12	5°38'03				
minimum elong	-4895 Oct 28 j 05:34	29° $\mathring{\text{M}}$ 46'13	5°38'04	conjunction	-4887 Nov 12 j 19:04	15° $\mathring{\text{A}}$ 43'11	0°57'49
max. Earth dist.	-4895 Oct 30 j 06:35	29° $\mathring{\text{M}}$ 50'40	32.75715 AU	minimum elong	-4887 Nov 12 j 19:06	15° $\mathring{\text{A}}$ 43'12	0°57'45
	-4895 Nov 03 j 13:28	0° $\mathring{\text{A}}$		max. Earth dist.	-4887 Nov 15 j 12:34	15° $\mathring{\text{A}}$ 48'46	34.48582 AU
retrograde	-4894 Feb 09 j 13:16	2° $\mathring{\text{A}}$ 09'44		retrograde	-4886 Feb 25 j 01:52	17° $\mathring{\text{A}}$ 57'27	
min. Earth dist.	-4894 Apr 28 j 21:23	0° $\mathring{\text{A}}$ 53'45	30.86301 AU	min. Earth dist.	-4886 May 14 j 18:22	16° $\mathring{\text{A}}$ 44'59	32.60404 AU
opposition	-4894 Apr 30 j 23:36	0° $\mathring{\text{A}}$ 50'32	5°40'52	opposition	-4886 May 17 j 13:41	16° $\mathring{\text{A}}$ 40'52	0°43'11
	-4894 Jun 05 j 14:56	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$		direct	-4886 Aug 05 j 12:40	15° $\mathring{\text{A}}$ 25'23	
direct	-4894 Jul 19 j 20:13	29° $\mathring{\text{M}}$ 31'44					
	-4894 Aug 31 j 08:18	0° $\mathring{\text{A}}$		conjunction	-4886 Nov 14 j 20:57	17° $\mathring{\text{A}}$ 35'29	0°24'07
conjunction	-4894 Oct 30 j 12:32	1° $\mathring{\text{A}}$ 52'17	5°02'28	minimum elong	-4886 Nov 14 j 20:58	17° $\mathring{\text{A}}$ 35'29	0°24'04
minimum elong	-4894 Oct 30 j 12:45	1° $\mathring{\text{A}}$ 52'19	5°02'29	max. Earth dist.	-4886 Nov 17 j 15:51	17° $\mathring{\text{A}}$ 41'07	34.72400 AU
max. Earth dist.	-4894 Nov 01 j 15:52	1° $\mathring{\text{A}}$ 56'55	32.95302 AU	retrograde	-4885 Feb 27 j 04:51	19° $\mathring{\text{A}}$ 48'40	
retrograde	-4893 Feb 11 j 19:38	4° $\mathring{\text{A}}$ 14'36		min. Earth dist.	-4885 May 16 j 22:12	18° $\mathring{\text{A}}$ 36'35	32.84361 AU
min. Earth dist.	-4893 May 01 j 05:01	2° $\mathring{\text{A}}$ 59'03	31.05958 AU	opposition	-4885 May 19 j 18:20	18° $\mathring{\text{A}}$ 32'27	0°07'38
opposition	-4893 May 03 j 10:00	2° $\mathring{\text{A}}$ 55'41	5°02'52	direct	-4885 Aug 07 j 17:39	17° $\mathring{\text{A}}$ 17'24	
direct	-4893 Jul 22 j 08:45	1° $\mathring{\text{A}}$ 37'15		desc. node	-4885 Aug 07 j 03:17	17° $\mathring{\text{A}}$ 17'24	



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 2

Attention, astronomical year style is used: The year -4885 in astronomical counting style is the year 4886 BCE in historical counting style.

conjunction	-4885 Nov 16 j 22:24	19° <u>♂</u> 26'19	0°-9'-12	min. Earth dist.	-4877 May 31 j 02:55	2° <u>♂</u> 36'23	34.82661 AU
minimum elong	-4885 Nov 16 j 22:24	19° <u>♂</u> 26'19	0°09'18	opposition	-4877 Jun 03 j 07:18	2° <u>♂</u> 31'55	-4°-16'-26
behind sun begin	-4885 Nov 16 j 17:00	19° <u>♂</u> 25'54		direct	-4877 Aug 22 j 09:55	1° <u>♂</u> 19'46	
behind sun end	-4885 Nov 17 j 03:47	19° <u>♂</u> 26'45					
max. Earth dist.	-4885 Nov 19 j 18:56	19° <u>♂</u> 32'03	34.96484 AU	conjunction	-4877 Nov 30 j 13:22	3° <u>♂</u> 19'49	-4°-16'-40
retrograde	-4884 Feb 29 j 05:00	21° <u>♂</u> 38'28		minimum elong	-4877 Nov 30 j 13:14	3° <u>♂</u> 19'49	4°16'49
min. Earth dist.	-4884 May 18 j 00:53	20° <u>♂</u> 26'47	33.08544 AU	max. Earth dist.	-4877 Dec 03 j 17:26	3° <u>♂</u> 25'48	36.94930 AU
opposition	-4884 May 20 j 22:10	20° <u>♂</u> 22'36	0°-27'-24	retrograde	-4876 Mar 13 j 18:04	5° <u>♂</u> 23'55	
direct	-4884 Aug 08 j 23:33	19° <u>♂</u> 07'58		min. Earth dist.	-4876 Jun 01 j 00:28	4° <u>♂</u> 15'00	35.08362 AU
				opposition	-4876 Jun 04 j 06:13	4° <u>♂</u> 10'29	-4°-46'-36
				direct	-4876 Aug 23 j 09:28	2° <u>♂</u> 58'41	
conjunction	-4884 Nov 17 j 23:13	21° <u>♂</u> 15'43	0°-41'-58				
minimum elong	-4884 Nov 17 j 23:12	21° <u>♂</u> 15'42	0°42'04				
max. Earth dist.	-4884 Nov 20 j 20:00	21° <u>♂</u> 21'25	35.20748 AU	conjunction	-4876 Dec 01 j 10:00	4° <u>♂</u> 57'46	-4°-45'00
retrograde	-4883 Mar 02 j 05:32	23° <u>♂</u> 26'49		minimum elong	-4876 Dec 01 j 09:51	4° <u>♂</u> 57'45	4°45'09
min. Earth dist.	-4883 May 20 j 02:50	22° <u>♂</u> 15'32	33.32920 AU	max. Earth dist.	-4876 Dec 04 j 16:05	5° <u>♂</u> 03'52	37.20575 AU
opposition	-4883 May 23 j 01:33	22° <u>♂</u> 11'17	-1°-1'-55	retrograde	-4875 Mar 15 j 12:52	7° <u>♂</u> 00'58	
direct	-4883 Aug 11 j 02:21	20° <u>♂</u> 57'03		min. Earth dist.	-4875 Jun 02 j 22:55	5° <u>♂</u> 52'21	35.34212 AU
				opposition	-4875 Jun 06 j 04:37	5° <u>♂</u> 47'51	-5°-16'-6
				direct	-4875 Aug 25 j 09:07	4° <u>♂</u> 36'25	
conjunction	-4883 Nov 19 j 23:35	23° <u>♂</u> 03'38	-1°-14'-17				
minimum elong	-4883 Nov 19 j 23:32	23° <u>♂</u> 03'38	1°14'23				
max. Earth dist.	-4883 Nov 22 j 22:25	23° <u>♂</u> 09'28	35.45156 AU	conjunction	-4875 Dec 03 j 06:03	6° <u>♂</u> 34'33	-5°-12'-43
retrograde	-4882 Mar 04 j 03:47	25° <u>♂</u> 13'41		minimum elong	-4875 Dec 03 j 05:53	6° <u>♂</u> 34'32	5°12'52
min. Earth dist.	-4882 May 22 j 05:19	24° <u>♂</u> 02'43	33.57424 AU	max. Earth dist.	-4875 Dec 06 j 11:57	6° <u>♂</u> 40'35	37.46334 AU
opposition	-4882 May 25 j 04:13	23° <u>♂</u> 58'28	-1°-35'-52	retrograde	-4874 Mar 17 j 09:59	8° <u>♂</u> 36'52	
direct	-4882 Aug 13 j 06:00	22° <u>♂</u> 44'36		min. Earth dist.	-4874 Jun 04 j 19:06	7° <u>♂</u> 28'39	35.60153 AU
				opposition	-4874 Jun 08 j 02:27	7° <u>♂</u> 24'05	-5°-44'-55
				direct	-4874 Aug 27 j 06:01	6° <u>♂</u> 13'00	
conjunction	-4882 Nov 21 j 23:20	24° <u>♂</u> 50'02	-1°-46'-5				
minimum elong	-4882 Nov 21 j 23:16	24° <u>♂</u> 50'02	1°46'11				
max. Earth dist.	-4882 Nov 24 j 22:00	24° <u>♂</u> 55'49	35.69677 AU	conjunction	-4874 Dec 05 j 01:51	8° <u>♂</u> 10'13	-5°-39'-49
retrograde	-4881 Mar 06 j 04:16	26° <u>♂</u> 59'03		minimum elong	-4874 Dec 05 j 01:41	8° <u>♂</u> 10'12	5°39'59
min. Earth dist.	-4881 May 24 j 05:10	25° <u>♂</u> 48'28	33.82070 AU	max. Earth dist.	-4874 Dec 08 j 09:00	8° <u>♂</u> 16'18	37.72122 AU
opposition	-4881 May 27 j 05:59	25° <u>♂</u> 44'08	-2°-9'-14	retrograde	-4873 Mar 19 j 06:31	10° <u>♂</u> 11'41	
direct	-4881 Aug 15 j 06:36	24° <u>♂</u> 30'37		min. Earth dist.	-4873 Jun 06 j 17:05	9° <u>♂</u> 03'43	35.86102 AU
				opposition	-4873 Jun 09 j 23:44	8° <u>♂</u> 59'13	-6°-13'-4
				direct	-4873 Aug 29 j 02:23	7° <u>♂</u> 48'30	
conjunction	-4881 Nov 23 j 22:29	26° <u>♂</u> 34'55	-2°-17'-20				
minimum elong	-4881 Nov 23 j 22:24	26° <u>♂</u> 34'54	2°17'28				
max. Earth dist.	-4881 Nov 26 j 23:00	26° <u>♂</u> 40'47	35.94326 AU	conjunction	-4873 Dec 06 j 21:16	9° <u>♂</u> 44'49	-6°-6'-18
retrograde	-4880 Mar 07 j 03:23	28° <u>♂</u> 42'54		minimum elong	-4873 Dec 06 j 21:05	9° <u>♂</u> 44'48	6°06'28
min. Earth dist.	-4880 May 25 j 06:37	27° <u>♂</u> 32'35	34.06884 AU	max. Earth dist.	-4873 Dec 10 j 04:26	9° <u>♂</u> 50'51	37.97881 AU
opposition	-4880 May 28 j 07:20	27° <u>♂</u> 28'16	-2°-41'-59	retrograde	-4872 Mar 20 j 03:29	11° <u>♂</u> 45'26	
direct	-4880 Aug 16 j 07:54	26° <u>♂</u> 15'05		min. Earth dist.	-4872 Jun 07 j 12:58	10° <u>♂</u> 37'49	36.11983 AU
				opposition	-4872 Jun 10 j 20:34	10° <u>♂</u> 33'17	-6°-40'-33
				direct	-4872 Aug 29 j 22:31	9° <u>♂</u> 22'54	
conjunction	-4880 Nov 24 j 20:55	28° <u>♂</u> 18'16	-2°-48'-3				
minimum elong	-4880 Nov 24 j 20:49	28° <u>♂</u> 18'16	2°48'10				
max. Earth dist.	-4880 Nov 27 j 22:08	28° <u>♂</u> 24'09	36.19159 AU	conjunction	-4872 Dec 07 j 16:07	11° <u>♂</u> 18'20	-6°-32'-11
	-4879 Jan 25 j 04:09	0° <u>♂</u>		minimum elong	-4872 Dec 07 j 15:56	11° <u>♂</u> 18'19	6°32'22
retrograde	-4879 Mar 09 j 03:21	0° <u>♂</u> 25'14		max. Earth dist.	-4872 Dec 10 j 23:21	11° <u>♂</u> 24'20	38.23521 AU
	-4879 Apr 22 j 11:03	30° <u>♂</u>		retrograde	-4871 Mar 21 j 22:59	13° <u>♂</u> 18'09	
min. Earth dist.	-4879 May 27 j 05:15	29° <u>♂</u> 15'18	34.31906 AU	min. Earth dist.	-4871 Jun 09 j 09:48	12° <u>♂</u> 10'46	36.37741 AU
opposition	-4879 May 30 j 07:57	29° <u>♂</u> 10'53	-3°-14'-7	opposition	-4871 Jun 12 j 17:09	12° <u>♂</u> 06'17	-7°-7'-22
direct	-4879 Aug 18 j 08:53	27° <u>♂</u> 58'02		direct	-4871 Aug 31 j 18:36	10° <u>♂</u> 56'12	
conjunction	-4879 Nov 26 j 18:55	0° <u>♂</u> 00'10	-3°-18'-11	conjunction	-4871 Dec 09 j 10:54	12° <u>♂</u> 50'47	-6°-57'-27
minimum elong	-4879 Nov 26 j 18:48	0° <u>♂</u> 00'09	3°18'19	minimum elong	-4871 Dec 09 j 10:42	12° <u>♂</u> 50'46	6°57'37
	-4879 Nov 26 j 16:56	0° <u>♂</u>		max. Earth dist.	-4871 Dec 12 j 18:53	12° <u>♂</u> 56'48	38.49007 AU
max. Earth dist.	-4879 Nov 29 j 21:20	0° <u>♂</u> 06'05	36.44192 AU	retrograde	-4870 Mar 23 j 15:11	14° <u>♂</u> 49'46	
retrograde	-4878 Mar 11 j 02:41	2° <u>♂</u> 06'08		min. Earth dist.	-4870 Jun 11 j 05:46	13° <u>♂</u> 42'39	36.63313 AU
min. Earth dist.	-4878 May 29 j 04:42	0° <u>♂</u> 56'30	34.57174 AU	opposition	-4870 Jun 14 j 12:57	13° <u>♂</u> 38'10	-7°-33'-32
opposition	-4878 Jun 01 j 07:58	0° <u>♂</u> 52'05	-3°-45'-36	direct	-4870 Sep 02 j 17:19	12° <u>♂</u> 28'24	
	-4878 Jul 12 j 10:34	30° <u>♂</u>					
direct	-4878 Aug 20 j 08:11	29° <u>♂</u> 39'34		conjunction	-4870 Dec 11 j 05:04	14° <u>♂</u> 22'07	-7°-22'-7
	-4878 Sep 27 j 05:16	0° <u>♂</u>		minimum elong	-4870 Dec 11 j 04:52	14° <u>♂</u> 22'06	7°22'18
				max. Earth dist.	-4870 Dec 14 j 12:02	14° <u>♂</u> 28'02	38.74301 AU
conjunction	-4878 Nov 28 j 16:31	1° <u>♂</u> 40'39	-3°-47'-43		-4869 Jan 01 j 16:36	15° <u>♂</u>	
minimum elong	-4878 Nov 28 j 16:23	1° <u>♂</u> 40'38	3°47'52	retrograde	-4869 Mar 25 j 08:55	16° <u>♂</u> 20'17	
max. Earth dist.	-4878 Dec 01 j 20:26	1° <u>♂</u> 46'40	36.69462 AU	min. Earth dist.	-4869 Jun 13 j 00:37	15° <u>♂</u> 13'27	36.88717 AU
retrograde	-4877 Mar 12 j 21:49	3° <u>♂</u> 45'40		opposition	-4869 Jun 16 j 08:24	15° <u>♂</u> 08'57	-7°-59'-2



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 3

Attention, astronomical year style is used: The year -4869 in astronomical counting style is the year 4870 BCE in historical counting style.

	-4869 Jun 23 j 00:16	15° $\mathbb{M}$		conjunction	-4861 Dec 24 j 07:08	27° $\mathbb{M}$ 18'41	-10°-36'-29
direct	-4869 Sep 04 j 13:20	13° $\mathbb{M}$ 59'28		minimum elong	-4861 Dec 24 j 06:55	27° $\mathbb{M}$ 18'40	10°36'42
	-4869 Nov 12 j 11:05	15° $\mathbb{M}$		max. Earth dist.	-4861 Dec 27 j 16:20	27° $\mathbb{M}$ 24'26	40.97874 AU
				retrograde	-4860 Apr 06 j 09:53	29° $\mathbb{M}$ 10'27	
conjunction	-4869 Dec 12 j 22:46	15° $\mathbb{M}$ 52'20	-7°-46'-10	min. Earth dist.	-4860 Jun 25 j 10:56	28° $\mathbb{M}$ 05'49	39.13724 AU
minimum elong	-4869 Dec 12 j 22:33	15° $\mathbb{M}$ 52'19	7°46'21	opposition	-4860 Jun 28 j 19:10	28° $\mathbb{M}$ 01'28	-11°-18'-54
max. Earth dist.	-4869 Dec 16 j 06:56	15° $\mathbb{M}$ 58'17	38.99424 AU	direct	-4860 Sep 17 j 01:21	26° $\mathbb{M}$ 54'27	
retrograde	-4868 Mar 26 j 00:46	17° $\mathbb{M}$ 49'43					
min. Earth dist.	-4868 Jun 13 j 20:29	16° $\mathbb{M}$ 43'03	37.13970 AU	conjunction	-4860 Dec 24 j 21:51	28° $\mathbb{M}$ 40'50	-10°-55'-6
opposition	-4868 Jun 17 j 03:23	16° $\mathbb{M}$ 38'37	-8°-23'-53	minimum elong	-4860 Dec 24 j 21:37	28° $\mathbb{M}$ 40'49	10°55'20
direct	-4868 Sep 05 j 09:43	15° $\mathbb{M}$ 29'24		max. Earth dist.	-4860 Dec 28 j 06:35	28° $\mathbb{M}$ 46'30	41.22066 AU
					-4859 Feb 15 j 04:59	0° $\mathbb{A}$	
conjunction	-4868 Dec 13 j 16:03	17° $\mathbb{M}$ 21'26	-8°-9'-36	retrograde	-4859 Apr 08 j 03:27	0° $\mathbb{A}$ 31'58	
minimum elong	-4868 Dec 13 j 15:51	17° $\mathbb{M}$ 21'25	8°09'48		-4859 May 31 j 11:40	30° $\mathbb{R}$ $\mathbb{M}$	
max. Earth dist.	-4868 Dec 16 j 23:43	17° $\mathbb{M}$ 27'19	39.24433 AU	min. Earth dist.	-4859 Jun 27 j 03:22	29° $\mathbb{M}$ 27'30	39.37995 AU
retrograde	-4867 Mar 27 j 18:54	19° $\mathbb{M}$ 18'02		opposition	-4859 Jun 30 j 10:36	29° $\mathbb{M}$ 23'14	-11°-37'-57
min. Earth dist.	-4867 Jun 15 j 13:39	18° $\mathbb{M}$ 11'40	37.39141 AU	direct	-4859 Sep 18 j 14:12	28° $\mathbb{M}$ 16'27	
opposition	-4867 Jun 18 j 21:47	18° $\mathbb{M}$ 07'11	-8°-48'-3		-4859 Dec 25 j 04:52	0° $\mathbb{A}$	
direct	-4867 Sep 07 j 03:18	16° $\mathbb{M}$ 58'13					
				conjunction	-4859 Dec 26 j 12:28	0° $\mathbb{A}$ 02'13	-11°-13'-11
conjunction	-4867 Dec 15 j 08:56	18° $\mathbb{M}$ 49'28	-8°-32'-25	minimum elong	-4859 Dec 26 j 12:16	0° $\mathbb{A}$ 02'12	11°13'24
minimum elong	-4867 Dec 15 j 08:42	18° $\mathbb{M}$ 49'27	8°32'37	max. Earth dist.	-4859 Dec 29 j 21:19	0° $\mathbb{A}$ 07'51	41.45958 AU
max. Earth dist.	-4867 Dec 18 j 17:21	18° $\mathbb{M}$ 55'22	39.49365 AU	retrograde	-4858 Apr 09 j 16:04	1° $\mathbb{A}$ 52'42	
retrograde	-4866 Mar 29 j 13:41	20° $\mathbb{M}$ 45'18		min. Earth dist.	-4858 Jun 28 j 18:57	0° $\mathbb{A}$ 48'26	39.61919 AU
min. Earth dist.	-4866 Jun 17 j 08:19	19° $\mathbb{M}$ 39'07	37.64269 AU	opposition	-4858 Jul 02 j 01:35	0° $\mathbb{A}$ 44'12	-11°-56'-25
opposition	-4866 Jun 20 j 15:53	19° $\mathbb{M}$ 34'42	-9°-11'-34		-4858 Aug 08 j 09:24	30° $\mathbb{R}$ $\mathbb{M}$	
direct	-4866 Sep 08 j 19:43	18° $\mathbb{M}$ 26'01		direct	-4858 Sep 20 j 07:10	29° $\mathbb{M}$ 37'39	
					-4858 Nov 01 j 03:07	0° $\mathbb{A}$	
conjunction	-4866 Dec 17 j 01:33	20° $\mathbb{M}$ 16'29	-8°-54'-37				
minimum elong	-4866 Dec 17 j 01:20	20° $\mathbb{M}$ 16'28	8°54'50	conjunction	-4858 Dec 28 j 02:37	1° $\mathbb{A}$ 22'46	-11°-30'-42
max. Earth dist.	-4866 Dec 20 j 10:22	20° $\mathbb{M}$ 22'22	39.74271 AU	minimum elong	-4858 Dec 28 j 02:24	1° $\mathbb{A}$ 22'45	11°30'56
retrograde	-4865 Mar 31 j 06:10	22° $\mathbb{M}$ 11'35		max. Earth dist.	-4858 Dec 31 j 09:54	1° $\mathbb{A}$ 28'16	41.69501 AU
min. Earth dist.	-4865 Jun 19 j 00:58	21° $\mathbb{M}$ 05'41	37.89362 AU	retrograde	-4857 Apr 11 j 04:45	3° $\mathbb{A}$ 12'37	
opposition	-4865 Jun 22 j 09:13	21° $\mathbb{M}$ 01'15	-9°-34'-24	min. Earth dist.	-4857 Jun 30 j 09:39	2° $\mathbb{A}$ 08'32	39.85513 AU
direct	-4865 Sep 10 j 13:10	19° $\mathbb{M}$ 52'49		opposition	-4857 Jul 03 j 16:11	2° $\mathbb{A}$ 04'20	-12°-14'-19
				direct	-4857 Sep 21 j 23:08	0° $\mathbb{A}$ 57'59	
conjunction	-4865 Dec 18 j 17:38	21° $\mathbb{M}$ 42'34	-9°-16'-12				
minimum elong	-4865 Dec 18 j 17:25	21° $\mathbb{M}$ 42'33	9°16'24	conjunction	-4857 Dec 29 j 16:32	2° $\mathbb{A}$ 42'28	-11°-47'-42
max. Earth dist.	-4865 Dec 22 j 02:09	21° $\mathbb{M}$ 48'24	39.99147 AU	minimum elong	-4857 Dec 29 j 16:20	2° $\mathbb{A}$ 42'27	11°47'56
retrograde	-4864 Mar 31 j 22:06	23° $\mathbb{M}$ 36'57		max. Earth dist.	-4856 Jan 02 j 00:30	2° $\mathbb{A}$ 48'00	41.92723 AU
min. Earth dist.	-4864 Jun 19 j 17:55	22° $\mathbb{M}$ 31'19	38.14446 AU	retrograde	-4856 Apr 11 j 15:48	4° $\mathbb{A}$ 31'42	
opposition	-4864 Jun 23 j 02:28	22° $\mathbb{M}$ 26'53	-9°-56'-35	min. Earth dist.	-4856 Jul 01 j 01:21	3° $\mathbb{A}$ 27'43	40.08798 AU
direct	-4864 Sep 11 j 06:43	21° $\mathbb{M}$ 18'44		opposition	-4856 Jul 04 j 06:32	3° $\mathbb{A}$ 23'35	-12°-31'-39
				direct	-4856 Sep 22 j 16:07	2° $\mathbb{A}$ 17'26	
conjunction	-4864 Dec 19 j 09:26	23° $\mathbb{M}$ 07'46	-9°-37'-10				
minimum elong	-4864 Dec 19 j 09:13	23° $\mathbb{M}$ 07'45	9°37'23	conjunction	-4856 Dec 30 j 05:58	4° $\mathbb{A}$ 01'17	-12°-4'-9
max. Earth dist.	-4864 Dec 22 j 19:18	23° $\mathbb{M}$ 13'40	40.23996 AU	minimum elong	-4856 Dec 30 j 05:44	4° $\mathbb{A}$ 01'17	12°04'23
retrograde	-4863 Apr 02 j 10:41	25° $\mathbb{M}$ 01'28		max. Earth dist.	-4855 Jan 02 j 12:51	4° $\mathbb{A}$ 06'43	42.15676 AU
min. Earth dist.	-4863 Jun 21 j 11:06	23° $\mathbb{M}$ 56'05	38.39469 AU	retrograde	-4855 Apr 13 j 05:09	5° $\mathbb{A}$ 49'54	
opposition	-4863 Jun 24 j 19:15	23° $\mathbb{M}$ 51'41	-10°-18'-7	min. Earth dist.	-4855 Jul 02 j 14:34	4° $\mathbb{A}$ 46'09	40.31837 AU
direct	-4863 Sep 13 j 02:32	22° $\mathbb{M}$ 43'50		opposition	-4855 Jul 05 j 20:27	4° $\mathbb{A}$ 41'59	-12°-48'-24
				direct	-4855 Sep 24 j 06:14	3° $\mathbb{A}$ 36'01	
conjunction	-4863 Dec 21 j 00:56	24° $\mathbb{M}$ 32'10	-9°-57'-32				
minimum elong	-4863 Dec 21 j 00:43	24° $\mathbb{M}$ 32'09	9°57'44	conjunction	-4855 Dec 31 j 19:12	5° $\mathbb{A}$ 19'16	-12°-20'-3
max. Earth dist.	-4863 Dec 24 j 09:52	24° $\mathbb{M}$ 37'58	40.48772 AU	minimum elong	-4855 Dec 31 j 19:01	5° $\mathbb{A}$ 19'16	12°20'18
retrograde	-4862 Apr 04 j 02:21	26° $\mathbb{M}$ 25'12		max. Earth dist.	-4854 Jan 04 j 02:10	5° $\mathbb{A}$ 24'40	42.38398 AU
min. Earth dist.	-4862 Jun 23 j 02:28	25° $\mathbb{M}$ 20'07	38.64404 AU	retrograde	-4854 Apr 14 j 19:10	7° $\mathbb{A}$ 07'17	
opposition	-4862 Jun 26 j 11:28	25° $\mathbb{M}$ 15'41	-10°-39'00	min. Earth dist.	-4854 Jul 04 j 05:21	6° $\mathbb{A}$ 03'38	40.54683 AU
direct	-4862 Sep 14 j 18:46	24° $\mathbb{M}$ 08'07		opposition	-4854 Jul 07 j 10:00	5° $\mathbb{A}$ 59'34	-13°-4'-35
				direct	-4854 Sep 25 j 19:00	4° $\mathbb{A}$ 53'48	
conjunction	-4862 Dec 22 j 16:14	25° $\mathbb{M}$ 55'48	-10°-17'-18				
minimum elong	-4862 Dec 22 j 16:00	25° $\mathbb{M}$ 55'47	10°17'31	conjunction	-4853 Jan 02 j 08:16	6° $\mathbb{A}$ 36'28	-12°-35'-25
max. Earth dist.	-4862 Dec 26 j 01:58	26° $\mathbb{M}$ 01'37	40.73416 AU	minimum elong	-4853 Jan 02 j 08:03	6° $\mathbb{A}$ 36'27	12°35'39
retrograde	-4861 Apr 05 j 17:20	27° $\mathbb{M}$ 48'12		max. Earth dist.	-4853 Jan 05 j 15:22	6° $\mathbb{A}$ 41'50	42.60959 AU
min. Earth dist.	-4861 Jun 24 j 19:52	26° $\mathbb{M}$ 43'18	38.89178 AU	retrograde	-4853 Apr 16 j 08:27	8° $\mathbb{A}$ 23'53	
opposition	-4861 Jun 28 j 03:32	26° $\mathbb{M}$ 38'57	-10°-59'-15	min. Earth dist.	-4853 Jul 05 j 18:20	7° $\mathbb{A}$ 20'27	40.77360 AU
direct	-4861 Sep 16 j 10:59	25° $\mathbb{M}$ 31'40		opposition	-4853 Jul 08 j 23:11	7° $\mathbb{A}$ 16'23	-13°-20'-11



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 4

Attention, astronomical year style is used: The year -4853 in astronomical counting style is the year 4854 BCE in historical counting style.

direct	-4853 Sep 27 j 07:54	6°♂10°48		minimum elong	-4844 Jan 13 j 18:51	17°♂45°07	14°31'03
				max. Earth dist.	-4844 Jan 16 j 21:04	17°♂49°57	44.53638 AU
conjunction	-4852 Jan 03 j 20:43	7°♂52°56	-12°-50'-14	retrograde	-4844 Apr 26 j 14:54	19°♂28°09	
minimum elong	-4852 Jan 03 j 20:32	7°♂52°55	12°50'29	min. Earth dist.	-4844 Jul 16 j 12:40	18°♂26°11	42.70288 AU
max. Earth dist.	-4852 Jan 07 j 02:59	7°♂58°13	42.83362 AU	opposition	-4844 Jul 19 j 10:49	18°♂22°34	-15°-16'-49
retrograde	-4852 Apr 16 j 22:06	9°♂39°48		direct	-4844 Oct 07 j 23:38	17°♂18°51	
min. Earth dist.	-4852 Jul 06 j 07:25	8°♂36°33	40.99899 AU				
opposition	-4852 Jul 09 j 12:16	8°♂32°30	-13°-35'-13	conjunction	-4843 Jan 14 j 05:56	18°♂56°45	-14°-41'-18
direct	-4852 Sep 27 j 20:01	7°♂27°09		minimum elong	-4843 Jan 14 j 05:48	18°♂56°44	14°41'34
				max. Earth dist.	-4843 Jan 17 j 06:54	19°♂01°29	44.73221 AU
conjunction	-4851 Jan 04 j 09:15	9°♂08°45	-13°-4'-31	retrograde	-4843 Apr 28 j 02:24	20°♂39°17	
minimum elong	-4851 Jan 04 j 09:03	9°♂08°44	13°04'45	min. Earth dist.	-4843 Jul 17 j 23:09	19°♂37°29	42.89849 AU
max. Earth dist.	-4851 Jan 07 j 16:19	9°♂14°04	43.05627 AU	opposition	-4843 Jul 20 j 21:22	19°♂33°52	-15°-27'-23
retrograde	-4851 Apr 18 j 07:36	10°♂55°06		direct	-4843 Oct 09 j 10:04	18°♂30°18	
min. Earth dist.	-4851 Jul 07 j 21:02	9°♂52°01	41.22271 AU				
opposition	-4851 Jul 11 j 00:56	9°♂48°01	-13°-49'-42	conjunction	-4842 Jan 15 j 16:32	20°♂07°45	-14°-51'-22
direct	-4851 Sep 29 j 11:01	8°♂42°54		minimum elong	-4842 Jan 15 j 16:24	20°♂07°45	14°51'39
				max. Earth dist.	-4842 Jan 18 j 16:37	20°♂12°24	44.92461 AU
conjunction	-4850 Jan 05 j 21:28	10°♂23°59	-13°-18'-17	retrograde	-4842 Apr 29 j 15:26	21°♂49°50	
minimum elong	-4850 Jan 05 j 21:17	10°♂23°58	13°18'33	min. Earth dist.	-4842 Jul 19 j 10:57	20°♂48°06	43.09106 AU
max. Earth dist.	-4850 Jan 09 j 03:17	10°♂29°12	43.27722 AU	opposition	-4842 Jul 22 j 07:53	20°♂44°34	-15°-37'-29
retrograde	-4850 Apr 19 j 19:14	12°♂09°50		direct	-4842 Oct 10 j 17:46	19°♂41°09	
min. Earth dist.	-4850 Jul 09 j 08:59	11°♂07°00	41.44450 AU				
opposition	-4850 Jul 12 j 13:21	11°♂03°00	-14°-3'-38	conjunction	-4841 Jan 17 j 03:02	21°♂18°10	-15°-1'00
direct	-4850 Oct 01 j 00:11	9°♂58°06		minimum elong	-4841 Jan 17 j 02:55	21°♂18°09	15°01'16
				max. Earth dist.	-4841 Jan 20 j 03:18	21°♂22°48	45.11425 AU
conjunction	-4849 Jan 07 j 09:28	11°♂38°43	-13°-31'-33	retrograde	-4841 May 01 j 00:10	22°♂59°47	
minimum elong	-4849 Jan 07 j 09:17	11°♂38°42	13°31'48	min. Earth dist.	-4841 Jul 20 j 21:32	21°♂58°11	43.28085 AU
max. Earth dist.	-4849 Jan 10 j 15:32	11°♂43°55	43.49587 AU	opposition	-4841 Jul 23 j 17:58	21°♂54°41	-15°-47'-7
retrograde	-4849 Apr 21 j 08:09	13°♂24°05		direct	-4841 Oct 12 j 05:28	20°♂51°24	
min. Earth dist.	-4849 Jul 10 j 22:43	12°♂21°24	41.66375 AU				
opposition	-4849 Jul 14 j 01:31	12°♂17°29	-14°-17'-2	conjunction	-4840 Jan 18 j 13:10	22°♂28°01	-15°-10'-10
direct	-4849 Oct 02 j 11:46	11°♂12°50		minimum elong	-4840 Jan 18 j 13:02	22°♂28°00	15°10'26
				max. Earth dist.	-4840 Jan 21 j 11:49	22°♂32°32	45.30144 AU
conjunction	-4848 Jan 08 j 21:22	12°♂52°59	-13°-44'-18	retrograde	-4840 May 01 j 09:25	24°♂09°12	
minimum elong	-4848 Jan 08 j 21:12	12°♂52°58	13°44'35	min. Earth dist.	-4840 Jul 21 j 07:37	23°♂07°45	43.46838 AU
max. Earth dist.	-4848 Jan 12 j 02:48	12°♂58°07	43.71186 AU	opposition	-4840 Jul 24 j 03:59	23°♂04°16	-15°-56'-17
retrograde	-4848 Apr 21 j 20:38	14°♂37°53		direct	-4840 Oct 12 j 15:51	22°♂01°08	
min. Earth dist.	-4848 Jul 11 j 10:34	13°♂35°25	41.87984 AU				
opposition	-4848 Jul 14 j 13:23	13°♂31°31	-14°-29'-56	conjunction	-4839 Jan 18 j 23:12	23°♂37°21	-15°-18'-54
direct	-4848 Oct 02 j 22:43	12°♂27°05		minimum elong	-4839 Jan 18 j 23:06	23°♂37°21	15°19'10
				max. Earth dist.	-4839 Jan 21 j 22:24	23°♂41°54	45.48633 AU
conjunction	-4847 Jan 09 j 08:56	14°♂06°47	-13°-56'-36	retrograde	-4839 May 02 j 16:53	25°♂18°08	
minimum elong	-4847 Jan 09 j 08:46	14°♂06°46	13°56'51	min. Earth dist.	-4839 Jul 22 j 19:00	24°♂16°46	43.65339 AU
max. Earth dist.	-4847 Jan 12 j 13:04	14°♂11°48	43.92431 AU	opposition	-4839 Jul 25 j 13:50	24°♂13°22	-16°-4'-59
retrograde	-4847 Apr 23 j 10:11	15°♂51°13		direct	-4839 Oct 14 j 04:03	23°♂10°24	
min. Earth dist.	-4847 Jul 12 j 23:36	14°♂48°54	42.09220 AU				
opposition	-4847 Jul 16 j 01:11	14°♂45°05	-14°-42'-21	conjunction	-4838 Jan 20 j 09:09	24°♂46°14	-15°-27'-12
direct	-4847 Oct 04 j 09:02	13°♂40°51		minimum elong	-4838 Jan 20 j 09:02	24°♂46°14	15°27'27
				max. Earth dist.	-4838 Jan 23 j 07:04	24°♂50°41	45.66880 AU
conjunction	-4846 Jan 10 j 20:41	15°♂20°07	-14°-8'-26	retrograde	-4838 May 04 j 02:04	26°♂26°37	
minimum elong	-4846 Jan 10 j 20:31	15°♂20°06	14°08'42	min. Earth dist.	-4838 Jul 24 j 04:06	25°♂25°26	43.83575 AU
max. Earth dist.	-4846 Jan 14 j 00:50	15°♂25°07	44.13274 AU	opposition	-4838 Jul 26 j 23:14	25°♂22°02	-16°-13'-15
retrograde	-4846 Apr 24 j 19:42	17°♂04°04		direct	-4838 Oct 15 j 14:16	24°♂19°14	
min. Earth dist.	-4846 Jul 14 j 12:18	16°♂01°52	42.30011 AU				
opposition	-4846 Jul 17 j 12:31	15°♂58°08	-14°-54'-18	conjunction	-4837 Jan 21 j 18:50	25°♂54°42	-15°-35'-4
direct	-4846 Oct 05 j 22:23	14°♂54°06		minimum elong	-4837 Jan 21 j 18:45	25°♂54°42	15°35'21
				max. Earth dist.	-4837 Jan 24 j 16:01	25°♂59°05	45.84836 AU
conjunction	-4845 Jan 12 j 08:01	16°♂32°54	-14°-19'-50	retrograde	-4837 May 05 j 13:23	27°♂34°42	
minimum elong	-4845 Jan 12 j 07:52	16°♂32°54	14°20'05	min. Earth dist.	-4837 Jul 25 j 15:16	26°♂33°37	44.01504 AU
max. Earth dist.	-4845 Jan 15 j 10:06	16°♂37°46	44.33675 AU	opposition	-4837 Jul 28 j 08:44	26°♂30°19	-16°-21'-5
retrograde	-4845 Apr 26 j 06:31	18°♂16°23		direct	-4837 Oct 16 j 22:37	25°♂27°41	
min. Earth dist.	-4845 Jul 15 j 23:40	17°♂14°22	42.50362 AU				
opposition	-4845 Jul 18 j 23:45	17°♂10°39	-15°-5'-47	conjunction	-4836 Jan 23 j 04:24	27°♂02°48	-15°-42'-32
direct	-4845 Oct 07 j 09:54	16°♂06°47		minimum elong	-4836 Jan 23 j 04:18	27°♂02°48	15°42'48
				max. Earth dist.	-4836 Jan 26 j 01:23	27°♂07°09	46.02468 AU
conjunction	-4844 Jan 13 j 19:00	17°♂45°08	-14°-30'-47	retrograde	-4836 May 05 j 23:55	28°♂42°26	



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 5

Attention, astronomical year style is used: The year -4836 in astronomical counting style is the year 4837 BCE in historical counting style.

min. Earth dist.	-4836 Jul 26 j 01:10	27° $\mathring{A}$ 41'29	44.19056 AU	max. Earth dist.	-4828 Feb 03 j 16:11	5° $\mathring{C}$ 56'39	47.27735 AU
opposition	-4836 Jul 28 j 17:56	27° $\mathring{A}$ 38'13	-16°-28'-30	retrograde	-4828 May 14 j 17:03	7° $\mathring{C}$ 29'45	
direct	-4836 Oct 17 j 06:47	26° $\mathring{A}$ 35'45		min. Earth dist.	-4828 Aug 04 j 04:07	6° $\mathring{C}$ 29'29	45.43478 AU
				opposition	-4828 Aug 06 j 13:02	6° $\mathring{C}$ 26'39	-17°-14'-14
conjunction	-4835 Jan 23 j 13:53	28° $\mathring{A}$ 10'32	-15°-49'-37	direct	-4828 Oct 26 j 06:50	5° $\mathring{C}$ 25'08	
minimum elong	-4835 Jan 23 j 13:49	28° $\mathring{A}$ 10'32	15°49'54				
max. Earth dist.	-4835 Jan 26 j 08:53	28° $\mathring{A}$ 14'45	46.19696 AU	conjunction	-4827 Feb 01 j 12:33	6° $\mathring{C}$ 57'24	-16°-33'-12
retrograde	-4835 May 07 j 10:43	29° $\mathring{A}$ 49'48		minimum elong	-4827 Feb 01 j 12:30	6° $\mathring{C}$ 57'23	16°33'27
min. Earth dist.	-4835 Jul 27 j 11:08	28° $\mathring{A}$ 48'58	44.36184 AU	max. Earth dist.	-4827 Feb 04 j 00:00	7° $\mathring{C}$ 01'01	47.41803 AU
opposition	-4835 Jul 30 j 02:58	28° $\mathring{A}$ 45'46	-16°-35'-31	retrograde	-4827 May 16 j 00:34	8° $\mathring{C}$ 33'52	
direct	-4835 Oct 18 j 14:38	27° $\mathring{A}$ 43'26		min. Earth dist.	-4827 Aug 05 j 13:31	7° $\mathring{C}$ 33'39	45.57491 AU
				opposition	-4827 Aug 07 j 20:38	7° $\mathring{C}$ 30'55	-17°-18'-14
conjunction	-4834 Jan 24 j 23:27	29° $\mathring{A}$ 17'54	-15°-56'-20	direct	-4827 Oct 27 j 15:56	6° $\mathring{C}$ 29'31	
minimum elong	-4834 Jan 24 j 23:23	29° $\mathring{A}$ 17'54	15°56'36				
max. Earth dist.	-4834 Jan 27 j 18:10	29° $\mathring{A}$ 22'05	46.36466 AU	conjunction	-4826 Feb 02 j 20:49	8° $\mathring{C}$ 01'31	-16°-36'-59
	-4834 Feb 22 j 22:40	0° $\mathring{C}$		minimum elong	-4826 Feb 02 j 20:49	8° $\mathring{C}$ 01'31	16°37'15
retrograde	-4834 May 08 j 16:43	0° $\mathring{C}$ 56'48		max. Earth dist.	-4826 Feb 05 j 07:49	8° $\mathring{C}$ 05'06	47.55623 AU
	-4834 Jul 25 j 14:37	30° $\mathring{R}$ $\mathring{A}$		retrograde	-4826 May 17 j 10:17	9° $\mathring{C}$ 37'41	
min. Earth dist.	-4834 Jul 28 j 22:03	29° $\mathring{A}$ 56'01	44.52812 AU	min. Earth dist.	-4826 Aug 06 j 21:04	8° $\mathring{C}$ 37'37	45.71224 AU
opposition	-4834 Jul 31 j 11:55	29° $\mathring{A}$ 52'55	-16°-42'-10	opposition	-4826 Aug 09 j 04:02	8° $\mathring{C}$ 34'54	-17°-21'-51
direct	-4834 Oct 20 j 02:27	28° $\mathring{A}$ 50'44		direct	-4826 Oct 28 j 22:11	7° $\mathring{C}$ 33'38	
	-4833 Jan 09 j 13:07	0° $\mathring{C}$					
conjunction	-4833 Jan 26 j 08:42	0° $\mathring{C}$ 24'52	-16°-2'-41	conjunction	-4825 Feb 04 j 04:41	9° $\mathring{C}$ 05'23	-16°-40'-24
minimum elong	-4833 Jan 26 j 08:38	0° $\mathring{C}$ 24'52	16°02'58	minimum elong	-4825 Feb 04 j 04:40	9° $\mathring{C}$ 05'23	16°40'41
max. Earth dist.	-4833 Jan 29 j 01:23	0° $\mathring{C}$ 28'54	46.52740 AU	max. Earth dist.	-4825 Feb 06 j 14:01	9° $\mathring{C}$ 08'51	47.69148 AU
retrograde	-4833 May 10 j 00:22	2° $\mathring{C}$ 03'23		retrograde	-4825 May 18 j 20:52	10° $\mathring{C}$ 41'17	
min. Earth dist.	-4833 Jul 30 j 06:59	1° $\mathring{C}$ 02'45	44.68936 AU	min. Earth dist.	-4825 Aug 08 j 05:30	9° $\mathring{C}$ 41'18	45.84655 AU
opposition	-4833 Aug 01 j 20:33	0° $\mathring{C}$ 59'39	-16°-48'-27	opposition	-4825 Aug 10 j 11:24	9° $\mathring{C}$ 38'39	-17°-25'-7
	-4833 Oct 07 j 06:03	30° $\mathring{R}$ $\mathring{A}$		direct	-4825 Oct 30 j 02:23	8° $\mathring{C}$ 37'30	
direct	-4833 Oct 21 j 12:45	29° $\mathring{A}$ 57'36		conjunction	-4824 Feb 05 j 12:43	10° $\mathring{C}$ 09'02	-16°-43'-29
	-4833 Nov 04 j 15:00	0° $\mathring{C}$		minimum elong	-4824 Feb 05 j 12:44	10° $\mathring{C}$ 09'02	16°43'46
conjunction	-4832 Jan 27 j 17:46	1° $\mathring{C}$ 31'23	-16°-8'-41	max. Earth dist.	-4824 Feb 07 j 22:07	10° $\mathring{C}$ 12'30	47.82351 AU
minimum elong	-4832 Jan 27 j 17:42	1° $\mathring{C}$ 31'23	16°08'57	retrograde	-4824 May 19 j 02:50	11° $\mathring{C}$ 44'39	
max. Earth dist.	-4832 Jan 30 j 09:28	1° $\mathring{C}$ 35'21	46.68516 AU	min. Earth dist.	-4824 Aug 08 j 14:10	10° $\mathring{C}$ 44'45	45.97716 AU
retrograde	-4832 May 10 j 10:14	3° $\mathring{C}$ 09'33		opposition	-4824 Aug 10 j 18:34	10° $\mathring{C}$ 42'10	-17°-28'-1
min. Earth dist.	-4832 Jul 30 j 17:39	2° $\mathring{C}$ 08'55	44.84585 AU	direct	-4824 Oct 30 j 11:12	9° $\mathring{C}$ 41'10	
opposition	-4832 Aug 02 j 05:09	2° $\mathring{C}$ 05'57	-16°-54'-22	conjunction	-4823 Feb 05 j 20:36	11° $\mathring{C}$ 12'27	-16°-46'-14
direct	-4832 Oct 21 j 21:02	1° $\mathring{C}$ 04'00		minimum elong	-4823 Feb 05 j 20:36	11° $\mathring{C}$ 12'27	16°46'30
conjunction	-4831 Jan 28 j 02:43	2° $\mathring{C}$ 37'27	-16°-14'-20	max. Earth dist.	-4823 Feb 08 j 03:52	11° $\mathring{C}$ 15'48	47.95167 AU
minimum elong	-4831 Jan 28 j 02:39	2° $\mathring{C}$ 37'27	16°14'37	retrograde	-4823 May 20 j 08:31	12° $\mathring{C}$ 47'49	
max. Earth dist.	-4831 Jan 30 j 17:47	2° $\mathring{C}$ 41'21	46.83854 AU	min. Earth dist.	-4823 Aug 09 j 21:43	11° $\mathring{C}$ 48'01	46.10353 AU
retrograde	-4831 May 11 j 18:37	4° $\mathring{C}$ 15'15		opposition	-4823 Aug 12 j 01:38	11° $\mathring{C}$ 45'28	-17°-30'-36
min. Earth dist.	-4831 Aug 01 j 02:23	3° $\mathring{C}$ 14'43	44.99800 AU	direct	-4823 Oct 31 j 20:08	10° $\mathring{C}$ 44'35	
opposition	-4831 Aug 03 j 13:22	3° $\mathring{C}$ 11'46	-16°-59'-55	conjunction	-4822 Feb 07 j 04:33	12° $\mathring{C}$ 15'39	-16°-48'-41
direct	-4831 Oct 23 j 05:32	2° $\mathring{C}$ 09'55		minimum elong	-4822 Feb 07 j 04:34	12° $\mathring{C}$ 15'39	16°48'57
conjunction	-4830 Jan 29 j 11:25	3° $\mathring{C}$ 43'03	-16°-19'-36	max. Earth dist.	-4822 Feb 09 j 10:55	12° $\mathring{C}$ 18'56	48.07512 AU
minimum elong	-4830 Jan 29 j 11:23	3° $\mathring{C}$ 43'03	16°19'52	retrograde	-4822 May 21 j 14:46	13° $\mathring{C}$ 50'45	
max. Earth dist.	-4830 Feb 01 j 00:34	3° $\mathring{C}$ 46'49	46.98791 AU	min. Earth dist.	-4822 Aug 11 j 07:05	12° $\mathring{C}$ 50'58	46.22495 AU
retrograde	-4830 May 13 j 04:24	5° $\mathring{C}$ 20'29		opposition	-4822 Aug 13 j 08:36	12° $\mathring{C}$ 48'32	-17°-32'-52
min. Earth dist.	-4830 Aug 02 j 11:20	4° $\mathring{C}$ 20'01	45.14660 AU	direct	-4822 Nov 02 j 05:01	11° $\mathring{C}$ 47'45	
opposition	-4830 Aug 04 j 21:22	4° $\mathring{C}$ 17'08	-17°-5'-5	conjunction	-4821 Feb 08 j 12:24	13° $\mathring{C}$ 18'35	-16°-50'-49
direct	-4830 Oct 24 j 12:08	3° $\mathring{C}$ 15'23		minimum elong	-4821 Feb 08 j 12:25	13° $\mathring{C}$ 18'35	16°51'04
conjunction	-4829 Jan 30 j 20:03	4° $\mathring{C}$ 48'13	-16°-24'-30	max. Earth dist.	-4821 Feb 10 j 17:27	13° $\mathring{C}$ 21'46	48.19366 AU
minimum elong	-4829 Jan 30 j 20:00	4° $\mathring{C}$ 48'13	16°24'47	retrograde	-4821 May 22 j 22:00	14° $\mathring{C}$ 53'24	
max. Earth dist.	-4829 Feb 02 j 09:30	4° $\mathring{C}$ 52'00	47.13402 AU	min. Earth dist.	-4821 Aug 12 j 14:21	13° $\mathring{C}$ 53'42	46.34118 AU
retrograde	-4829 May 14 j 10:23	6° $\mathring{C}$ 25'18		opposition	-4821 Aug 14 j 15:26	13° $\mathring{C}$ 51'18	-17°-34'-50
min. Earth dist.	-4829 Aug 03 j 20:40	5° $\mathring{C}$ 24'54	45.29202 AU	direct	-4821 Nov 03 j 12:36	12° $\mathring{C}$ 50'35	
opposition	-4829 Aug 06 j 05:17	5° $\mathring{C}$ 22'05	-17°-9'-51	conjunction	-4820 Feb 09 j 19:50	14° $\mathring{C}$ 21'10	-16°-52'-40
direct	-4829 Oct 25 j 22:09	4° $\mathring{C}$ 20'26		minimum elong	-4820 Feb 09 j 19:52	14° $\mathring{C}$ 21'10	16°52'56
conjunction	-4828 Feb 01 j 04:16	5° $\mathring{C}$ 52'59	-16°-29'-2	max. Earth dist.	-4820 Feb 11 j 22:47	14° $\mathring{C}$ 24'13	48.30704 AU
minimum elong	-4828 Feb 01 j 04:15	5° $\mathring{C}$ 52'59	16°29'18	retrograde	-4820 May 23 j 07:56	15° $\mathring{C}$ 55'43	
				min. Earth dist.	-4820 Aug 12 j 22:55	14° $\mathring{C}$ 56'01	46.45248 AU



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 6

Attention, astronomical year style is used: The year -4820 in astronomical counting style is the year 4821 BCE in historical counting style.

opposition	-4820 Aug 14 j 22:16	14°♄53'42	-17°-36'-29	conjunction	-4811 Feb 18 j 11:42	23°♄30'31	-16°-55'-19
direct	-4820 Nov 03 j 17:23	13°♄53'04		minimum elong	-4811 Feb 18 j 11:48	23°♄30'32	16°55'35
				max. Earth dist.	-4811 Feb 20 j 05:45	23°♄32'59	49.16216 AU
conjunction	-4819 Feb 10 j 03:28	15°♄23'24	-16°-54'-12	retrograde	-4811 Jun 01 j 15:32	25°♄02'59	
minimum elong	-4819 Feb 10 j 03:31	15°♄23'24	16°54'28	min. Earth dist.	-4811 Aug 22 j 14:37	24°♄03'47	47.29177 AU
max. Earth dist.	-4819 Feb 12 j 06:14	15°♄26'26	48.41572 AU	opposition	-4811 Aug 24 j 04:54	24°♄01'56	-17°-37'-3
retrograde	-4819 May 24 j 14:41	16°♄57'39		direct	-4811 Nov 13 j 06:15	23°♄02'01	
min. Earth dist.	-4819 Aug 14 j 06:51	15°♄57'58	46.55914 AU				
opposition	-4819 Aug 16 j 04:45	15°♄55'44	-17°-37'-50	conjunction	-4810 Feb 19 j 18:34	24°♄30'45	-16°-54'-8
direct	-4819 Nov 05 j 00:14	14°♄55'08		minimum elong	-4810 Feb 19 j 18:39	24°♄30'45	16°54'22
				max. Earth dist.	-4810 Feb 21 j 10:22	24°♄33'04	49.23901 AU
conjunction	-4818 Feb 11 j 10:50	16°♄25'15	-16°-55'-27	retrograde	-4810 Jun 03 j 00:33	26°♄03'03	
minimum elong	-4818 Feb 11 j 10:53	16°♄25'15	16°55'43	min. Earth dist.	-4810 Aug 23 j 22:30	25°♄03'51	47.36587 AU
max. Earth dist.	-4818 Feb 13 j 11:28	16°♄28'08	48.52020 AU	opposition	-4810 Aug 25 j 10:41	25°♄02'06	-17°-35'-36
retrograde	-4818 May 25 j 21:22	17°♄59'12		direct	-4810 Nov 14 j 10:16	24°♄02'16	
min. Earth dist.	-4818 Aug 15 j 13:35	16°♄59'35	46.66192 AU				
opposition	-4818 Aug 17 j 11:08	16°♄57'22	-17°-38'-52	conjunction	-4809 Feb 21 j 01:22	25°♄30'52	-16°-52'-41
direct	-4818 Nov 06 j 06:43	15°♄56'50		minimum elong	-4809 Feb 21 j 01:28	25°♄30'52	16°52'56
				max. Earth dist.	-4809 Feb 22 j 16:41	25°♄33'10	49.31063 AU
conjunction	-4817 Feb 12 j 17:59	17°♄26'43	-16°-56'-22	retrograde	-4809 Jun 04 j 07:54	27°♄02'59	
minimum elong	-4817 Feb 12 j 18:03	17°♄26'43	16°56'38	min. Earth dist.	-4809 Aug 25 j 05:35	26°♄03'49	47.43442 AU
max. Earth dist.	-4817 Feb 14 j 18:08	17°♄29'34	48.62095 AU	opposition	-4809 Aug 26 j 16:19	26°♄02'08	-17°-33'-54
retrograde	-4817 May 27 j 00:56	19°♄00'25		direct	-4809 Nov 15 j 14:56	25°♄02'21	
min. Earth dist.	-4817 Aug 16 j 21:48	18°♄00'47	46.76124 AU				
opposition	-4817 Aug 18 j 17:29	17°♄58'39	-17°-39'-35	conjunction	-4808 Feb 22 j 08:02	26°♄30'50	-16°-50'-59
direct	-4817 Nov 07 j 16:17	16°♄58'11		minimum elong	-4808 Feb 22 j 08:08	26°♄30'50	16°51'13
				max. Earth dist.	-4808 Feb 23 j 20:41	26°♄32'58	49.37689 AU
conjunction	-4816 Feb 14 j 01:09	18°♄27'51	-16°-56'-59	retrograde	-4808 Jun 04 j 15:33	28°♄02'45	
minimum elong	-4816 Feb 14 j 01:11	18°♄27'51	16°57'15	min. Earth dist.	-4808 Aug 25 j 11:55	27°♄03'36	47.49774 AU
max. Earth dist.	-4816 Feb 16 j 00:31	18°♄30'39	48.71871 AU	opposition	-4808 Aug 26 j 21:48	27°♄01'59	-17°-31'-56
retrograde	-4816 May 27 j 07:06	20°♄01'18		direct	-4808 Nov 15 j 19:23	26°♄02'14	
min. Earth dist.	-4816 Aug 17 j 03:55	19°♄01'46	46.85758 AU				
opposition	-4816 Aug 18 j 23:32	18°♄59'38	-17°-39'-57	conjunction	-4807 Feb 22 j 14:43	27°♄30'34	-16°-49'-1
direct	-4816 Nov 07 j 23:32	17°♄59'14		minimum elong	-4807 Feb 22 j 14:49	27°♄30'34	16°49'17
				max. Earth dist.	-4807 Feb 24 j 02:29	27°♄32'39	49.43796 AU
conjunction	-4815 Feb 14 j 08:05	19°♄28'42	-16°-57'-16	retrograde	-4807 Jun 05 j 17:46	29°♄02'18	
minimum elong	-4815 Feb 14 j 08:10	19°♄28'43	16°57'31	min. Earth dist.	-4807 Aug 26 j 19:43	28°♄03'06	47.55602 AU
max. Earth dist.	-4815 Feb 16 j 05:52	19°♄31'24	48.81357 AU	opposition	-4807 Aug 28 j 03:18	28°♄01'35	-17°-29'-42
retrograde	-4815 May 28 j 16:35	21°♄01'56		direct	-4807 Nov 17 j 04:19	27°♄01'53	
min. Earth dist.	-4815 Aug 18 j 11:23	20°♄02'26	46.95111 AU				
opposition	-4815 Aug 20 j 05:41	20°♄00'22	-17°-40'00	conjunction	-4806 Feb 23 j 21:18	28°♄30'04	-16°-46'-48
direct	-4815 Nov 09 j 03:04	19°♄00'04		minimum elong	-4806 Feb 23 j 21:26	28°♄30'04	16°47'02
				max. Earth dist.	-4806 Feb 25 j 07:46	28°♄32'04	49.49445 AU
conjunction	-4814 Feb 15 j 15:11	20°♄29'21	-16°-57'-14		-4806 May 25 j 16:47	0°≈	
minimum elong	-4814 Feb 15 j 15:15	20°♄29'21	16°57'30	retrograde	-4806 Jun 06 j 21:30	0°≈01'36	
max. Earth dist.	-4814 Feb 17 j 12:57	20°♄32'03	48.90565 AU		-4806 Jun 19 j 08:14	30°♄♂	
retrograde	-4814 May 29 j 22:37	22°♄02'21		min. Earth dist.	-4806 Aug 28 j 01:10	29°♄02'27	47.60992 AU
min. Earth dist.	-4814 Aug 19 j 18:16	21°♄02'55	47.04161 AU	opposition	-4806 Aug 29 j 08:25	29°♄00'57	-17°-27'-13
opposition	-4814 Aug 21 j 11:32	21°♄00'55	-17°-39'-43	direct	-4806 Nov 18 j 12:28	28°♄01'16	
direct	-4814 Nov 10 j 09:39	20°♄00'42					
				conjunction	-4805 Feb 25 j 03:39	29°♄29'19	-16°-44'-19
conjunction	-4813 Feb 16 j 22:01	21°♄29'50	-16°-56'-54	minimum elong	-4805 Feb 25 j 03:46	29°♄29'19	16°44'34
minimum elong	-4813 Feb 16 j 22:06	21°♄29'51	16°57'09	max. Earth dist.	-4805 Feb 26 j 12:17	29°♄31'12	49.54681 AU
max. Earth dist.	-4813 Feb 18 j 17:50	21°♄32'25	48.99478 AU		-4805 Mar 19 j 16:08	0°≈	
retrograde	-4813 May 31 j 04:44	23°♄02'38		retrograde	-4805 Jun 08 j 05:55	1°≈00'41	
min. Earth dist.	-4813 Aug 21 j 00:32	22°♄03'19	47.12902 AU	min. Earth dist.	-4805 Aug 29 j 08:10	0°≈01'30	47.66010 AU
opposition	-4813 Aug 22 j 17:25	22°♄01'20	-17°-39'-7	opposition	-4805 Aug 30 j 13:43	0°≈00'05	-17°-24'-26
direct	-4813 Nov 11 j 15:33	21°♄01'13			-4805 Aug 30 j 15:18	30°♄♂	
				direct	-4805 Nov 19 j 16:08	29°♄00'25	
conjunction	-4812 Feb 18 j 04:45	22°♄30'13	-16°-56'-15		-4804 Feb 05 j 15:06	0°≈	
minimum elong	-4812 Feb 18 j 04:49	22°♄30'13	16°56'30				
max. Earth dist.	-4812 Feb 20 j 00:06	22°♄32'46	49.08045 AU	conjunction	-4804 Feb 26 j 09:57	0°≈28'19	-16°-41'-32
retrograde	-4812 May 31 j 09:30	24°♄02'51		minimum elong	-4804 Feb 26 j 10:05	0°≈28'20	16°41'46
min. Earth dist.	-4812 Aug 21 j 08:36	23°♄03'32	47.21262 AU	max. Earth dist.	-4804 Feb 27 j 18:31	0°≈30'12	49.59575 AU
opposition	-4812 Aug 22 j 23:20	23°♄01'40	-17°-38'-13	retrograde	-4804 Jun 08 j 11:43	1°≈59'31	
direct	-4812 Nov 11 j 23:27	22°♄01'39		opposition	-4804 Aug 30 j 18:51	0°≈58'58	-17°-21'-22
				min. Earth dist.	-4804 Aug 29 j 14:07	1°≈00'21	47.70684 AU



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 7

Attention, astronomical year style is used: The year -4804 in astronomical counting style is the year 4805 BCE in historical counting style.

	-4804 Nov 12 j 05:25	30° $\approx$ 30°		conjunction	-4795 Mar 06 j 17:35	9° $\approx$ 13'46	-16°-4'-31
direct	-4804 Nov 19 j 21:31	29° $\approx$ 29°59'21		minimum elong	-4795 Mar 06 j 17:45	9° $\approx$ 13'46	16°04'44
	-4804 Nov 27 j 14:18	0° $\approx$		max. Earth dist.	-4795 Mar 07 j 12:56	9° $\approx$ 14'52	49.87207 AU
				retrograde	-4795 Jun 17 j 13:03	10° $\approx$ 43'51	
conjunction	-4803 Feb 26 j 16:12	1° $\approx$ 27'08	-16°-38'-29	opposition	-4795 Sep 08 j 14:37	9° $\approx$ 43'50	-16°-41'-26
minimum elong	-4803 Feb 26 j 16:19	1° $\approx$ 27'08	16°38'43	min. Earth dist.	-4795 Sep 07 j 21:36	9° $\approx$ 44'39	47.95750 AU
max. Earth dist.	-4803 Feb 27 j 22:42	1° $\approx$ 28'53	49.64153 AU	direct	-4795 Nov 28 j 21:58	8° $\approx$ 44'28	
retrograde	-4803 Jun 09 j 18:33	2° $\approx$ 58'10					
opposition	-4803 Aug 31 j 23:49	1° $\approx$ 57'40	-17°-18'00	conjunction	-4794 Mar 07 j 23:45	10° $\approx$ 11'37	-15°-59'-11
min. Earth dist.	-4803 Aug 30 j 19:42	1° $\approx$ 59'01	47.75059 AU	minimum elong	-4794 Mar 07 j 23:55	10° $\approx$ 11'37	15°59'24
direct	-4803 Nov 21 j 01:15	0° $\approx$ 58'05		max. Earth dist.	-4794 Mar 08 j 18:41	10° $\approx$ 12'41	49.87952 AU
				retrograde	-4794 Jun 18 j 18:34	11° $\approx$ 41'36	
conjunction	-4802 Feb 27 j 22:30	2° $\approx$ 25'46	-16°-35'-9	opposition	-4794 Sep 09 j 19:12	10° $\approx$ 41'36	-16°-35'-45
minimum elong	-4802 Feb 27 j 22:39	2° $\approx$ 25'47	16°35'23	min. Earth dist.	-4794 Sep 09 j 03:10	10° $\approx$ 42'22	47.96186 AU
max. Earth dist.	-4802 Mar 01 j 04:37	2° $\approx$ 27'30	49.68426 AU	direct	-4794 Nov 30 j 02:40	9° $\approx$ 42'14	
retrograde	-4802 Jun 10 j 22:09	3° $\approx$ 56'39					
min. Earth dist.	-4802 Sep 01 j 02:36	2° $\approx$ 57'29	47.79120 AU	conjunction	-4793 Mar 09 j 05:30	11° $\approx$ 09'19	-15°-53'-35
opposition	-4802 Sep 02 j 04:56	2° $\approx$ 56'14	-17°-14'-21	minimum elong	-4793 Mar 09 j 05:41	11° $\approx$ 09'20	15°53'48
direct	-4802 Nov 22 j 08:29	1° $\approx$ 56'41		max. Earth dist.	-4793 Mar 09 j 22:16	11° $\approx$ 10'16	49.88293 AU
				retrograde	-4793 Jun 20 j 01:36	12° $\approx$ 39'12	
conjunction	-4801 Mar 01 j 04:33	3° $\approx$ 24'17	-16°-31'-32	opposition	-4793 Sep 10 j 23:46	11° $\approx$ 39'14	-16°-29'-48
minimum elong	-4801 Mar 01 j 04:40	3° $\approx$ 24'17	16°31'46	min. Earth dist.	-4793 Sep 10 j 08:32	11° $\approx$ 39'57	47.96257 AU
max. Earth dist.	-4801 Mar 02 j 09:30	3° $\approx$ 25'57	49.72402 AU	direct	-4793 Dec 01 j 05:43	10° $\approx$ 39'51	
retrograde	-4801 Jun 12 j 01:49	4° $\approx$ 55'02					
min. Earth dist.	-4801 Sep 02 j 07:32	3° $\approx$ 55'57	47.82858 AU	conjunction	-4792 Mar 09 j 11:27	12° $\approx$ 06'54	-15°-47'-44
opposition	-4801 Sep 03 j 09:49	3° $\approx$ 54'41	-17°-10'-24	minimum elong	-4792 Mar 09 j 11:37	12° $\approx$ 06'55	15°47'58
direct	-4801 Nov 23 j 15:22	2° $\approx$ 55'11		max. Earth dist.	-4792 Mar 10 j 03:44	12° $\approx$ 07'50	49.88284 AU
				retrograde	-4792 Jun 20 j 04:54	13° $\approx$ 36'42	
conjunction	-4800 Mar 01 j 10:38	4° $\approx$ 22'42	-16°-27'-39	opposition	-4792 Sep 11 j 04:16	12° $\approx$ 36'45	-16°-23'-35
minimum elong	-4800 Mar 01 j 10:48	4° $\approx$ 22'42	16°27'53	min. Earth dist.	-4792 Sep 10 j 14:49	12° $\approx$ 37'24	47.95995 AU
max. Earth dist.	-4800 Mar 02 j 13:53	4° $\approx$ 24'16	49.76030 AU	direct	-4792 Dec 01 j 12:23	11° $\approx$ 37'23	
retrograde	-4800 Jun 12 j 08:39	5° $\approx$ 53'21					
opposition	-4800 Sep 03 j 14:45	4° $\approx$ 53'05	-17°-6'-12	conjunction	-4791 Mar 10 j 17:23	13° $\approx$ 04'25	-15°-41'-37
min. Earth dist.	-4800 Sep 02 j 14:28	4° $\approx$ 54'14	47.86233 AU	minimum elong	-4791 Mar 10 j 17:35	13° $\approx$ 04'25	15°41'50
direct	-4800 Nov 23 j 20:06	3° $\approx$ 53'37		max. Earth dist.	-4791 Mar 11 j 08:28	13° $\approx$ 05'16	49.87982 AU
				retrograde	-4791 Jun 21 j 08:04	14° $\approx$ 34'08	
conjunction	-4799 Mar 02 j 16:57	5° $\approx$ 21'04	-16°-23'-30	opposition	-4791 Sep 12 j 08:42	13° $\approx$ 34'14	-16°-17'-5
minimum elong	-4799 Mar 02 j 17:06	5° $\approx$ 21'05	16°23'44	min. Earth dist.	-4791 Sep 11 j 19:12	13° $\approx$ 34'52	47.95440 AU
max. Earth dist.	-4799 Mar 03 j 19:48	5° $\approx$ 22'37	49.79267 AU	direct	-4791 Dec 02 j 19:00	12° $\approx$ 34'51	
retrograde	-4799 Jun 13 j 15:40	6° $\approx$ 51'36					
opposition	-4799 Sep 04 j 19:35	5° $\approx$ 51'25	-17°-1'-43	conjunction	-4790 Mar 11 j 23:12	14° $\approx$ 01'52	-15°-35'-15
min. Earth dist.	-4799 Sep 03 j 20:29	5° $\approx$ 52'31	47.89163 AU	minimum elong	-4790 Mar 11 j 23:22	14° $\approx$ 01'53	15°35'27
direct	-4799 Nov 25 j 00:21	4° $\approx$ 52'00		max. Earth dist.	-4790 Mar 12 j 12:38	14° $\approx$ 02'38	49.87382 AU
					-4790 Apr 27 j 04:57	15° $\approx$	
conjunction	-4798 Mar 03 j 23:07	6° $\approx$ 19'23	-16°-19'-6	retrograde	-4790 Jun 22 j 13:53	15° $\approx$ 31'34	
minimum elong	-4798 Mar 03 j 23:17	6° $\approx$ 19'24	16°19'20		-4790 Aug 18 j 17:32	15° $\approx$ R $\approx$	
max. Earth dist.	-4798 Mar 04 j 23:20	6° $\approx$ 20'47	49.82033 AU	opposition	-4790 Sep 13 j 13:12	14° $\approx$ 33'142	-16°-10'-19
retrograde	-4798 Jun 14 j 23:50	7° $\approx$ 49'49		min. Earth dist.	-4790 Sep 13 j 01:32	14° $\approx$ 32'15	47.94599 AU
min. Earth dist.	-4798 Sep 05 j 02:20	6° $\approx$ 50'44	47.91601 AU	direct	-4790 Dec 03 j 23:46	13° $\approx$ 32'21	
opposition	-4798 Sep 06 j 00:20	6° $\approx$ 49'41	-16°-57'00				
direct	-4798 Nov 26 j 03:06	5° $\approx$ 50'18		conjunction	-4789 Mar 13 j 05:06	14° $\approx$ 59'22	-15°-28'-36
				minimum elong	-4789 Mar 13 j 05:19	14° $\approx$ 59'22	15°28'48
conjunction	-4797 Mar 05 j 05:23	7° $\approx$ 17'38	-16°-14'-28		-4789 Mar 13 j 16:23	15° $\approx$	
minimum elong	-4797 Mar 05 j 05:32	7° $\approx$ 17'39	16°14'41	max. Earth dist.	-4789 Mar 13 j 18:29	15° $\approx$ 00'07	49.86507 AU
max. Earth dist.	-4797 Mar 06 j 04:34	7° $\approx$ 18'58	49.84279 AU	retrograde	-4789 Jun 23 j 20:30	16° $\approx$ 29'01	
retrograde	-4797 Jun 16 j 03:27	8° $\approx$ 47'57		opposition	-4789 Sep 14 j 17:37	15° $\approx$ 29'12	-16°-3'-16
min. Earth dist.	-4797 Sep 06 j 09:32	7° $\approx$ 48'49	47.93500 AU	min. Earth dist.	-4789 Sep 14 j 06:34	15° $\approx$ 29'44	47.93454 AU
opposition	-4797 Sep 07 j 05:14	7° $\approx$ 47'52	-16°-52'-3		-4789 Oct 11 j 09:29	15° $\approx$ R $\approx$	
direct	-4797 Nov 27 j 09:42	6° $\approx$ 48'30		direct	-4789 Dec 05 j 03:34	14° $\approx$ 29'52	
					-4788 Jan 28 j 02:28	15° $\approx$	
conjunction	-4796 Mar 05 j 11:28	8° $\approx$ 15'46	-16°-9'-37				
minimum elong	-4796 Mar 05 j 11:38	8° $\approx$ 15'47	16°09'50	conjunction	-4788 Mar 13 j 10:48	15° $\approx$ 56'54	-15°-21'-41
max. Earth dist.	-4796 Mar 06 j 09:03	8° $\approx$ 17'00	49.86005 AU	minimum elong	-4788 Mar 13 j 10:59	15° $\approx$ 56'55	15°21'53
retrograde	-4796 Jun 16 j 06:25	9° $\approx$ 45'58		max. Earth dist.	-4788 Mar 13 j 21:55	15° $\approx$ 57'32	49.85318 AU
opposition	-4796 Sep 07 j 09:57	8° $\approx$ 45'56	-16°-46'-52	retrograde	-4788 Jun 24 j 05:34	17° $\approx$ 26'31	
min. Earth dist.	-4796 Sep 06 j 14:48	8° $\approx$ 46'50	47.94870 AU	opposition	-4788 Sep 14 j 22:04	16° $\approx$ 26'46	-15°-55'-57
direct	-4796 Nov 27 j 17:26	7° $\approx$ 46'34		min. Earth dist.	-4788 Sep 14 j 11:57	16° $\approx$ 27'15	47.91971 AU



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 8

Attention, astronomical year style is used: The year -4788 in astronomical counting style is the year 4789 BCE in historical counting style.

direct	-4788 Dec 05 j 04:39	15°≈27'28		minimum elong	-4779 Mar 22 j 17:00	24°≈35'25	14°09'02
				max. Earth dist.	-4779 Mar 22 j 15:46	24°≈35'21	49.54058 AU
conjunction	-4787 Mar 14 j 16:51	16°≈54'32	-15°-14'-31	retrograde	-4779 Jul 03 j 00:13	26°≈04'49	
minimum elong	-4787 Mar 14 j 17:04	16°≈54'33	15°14'43	opposition	-4779 Sep 23 j 13:50	25°≈05'05	-14°-39'-19
max. Earth dist.	-4787 Mar 15 j 03:19	16°≈55'08	49.83743 AU	min. Earth dist.	-4779 Sep 23 j 15:48	25°≈04'59	47.57600 AU
retrograde	-4787 Jun 25 j 10:33	18°≈24'08		direct	-4779 Dec 14 j 05:32	24°≈05'29	
opposition	-4787 Sep 16 j 02:29	17°≈24'26	-15°-48'-24				
min. Earth dist.	-4787 Sep 15 j 18:33	17°≈24'48	47.90065 AU	conjunction	-4778 Mar 23 j 22:44	25°≈32'50	-13°-59'-32
direct	-4787 Dec 06 j 09:26	16°≈25'08		minimum elong	-4778 Mar 23 j 22:58	25°≈32'51	13°59'42
				max. Earth dist.	-4778 Mar 23 j 19:30	25°≈32'39	49.48604 AU
conjunction	-4786 Mar 15 j 22:54	17°≈52'14	-15°-7'-7	retrograde	-4778 Jul 04 j 08:50	27°≈02'16	
minimum elong	-4786 Mar 15 j 23:05	17°≈52'15	15°07'18	opposition	-4778 Sep 24 j 18:19	26°≈02'32	-14°-29'-32
max. Earth dist.	-4786 Mar 16 j 07:42	17°≈52'44	49.81730 AU	min. Earth dist.	-4778 Sep 24 j 21:05	26°≈02'24	47.51865 AU
retrograde	-4786 Jun 26 j 12:40	19°≈21'49		direct	-4778 Dec 15 j 07:03	25°≈02'55	
opposition	-4786 Sep 17 j 06:54	18°≈22'09	-15°-40'-36				
min. Earth dist.	-4786 Sep 16 j 23:29	18°≈22'30	47.87681 AU	conjunction	-4777 Mar 25 j 04:39	26°≈30'21	-13°-49'-58
direct	-4786 Dec 07 j 17:20	17°≈22'51		minimum elong	-4777 Mar 25 j 04:51	26°≈30'21	13°50'08
				max. Earth dist.	-4777 Mar 25 j 01:03	26°≈30'08	49.42850 AU
conjunction	-4785 Mar 17 j 04:44	18°≈49'59	-14°-59'-30	retrograde	-4777 Jul 05 j 14:56	27°≈59'50	
minimum elong	-4785 Mar 17 j 04:57	18°≈50'00	14°59'41	opposition	-4777 Sep 25 j 22:53	27°≈00'06	-14°-19'-29
max. Earth dist.	-4785 Mar 17 j 11:17	18°≈50'21	49.79201 AU	min. Earth dist.	-4777 Sep 26 j 03:22	26°≈59'53	47.45814 AU
retrograde	-4785 Jun 27 j 17:37	20°≈19'33		direct	-4777 Dec 16 j 11:10	26°≈00'27	
opposition	-4785 Sep 18 j 11:32	19°≈19'54	-15°-32'-34				
min. Earth dist.	-4785 Sep 18 j 06:23	19°≈20'08	47.84771 AU	conjunction	-4776 Mar 25 j 10:44	27°≈28'00	-13°-40'-8
direct	-4785 Dec 08 j 23:12	18°≈20'35		minimum elong	-4776 Mar 25 j 10:58	27°≈28'01	13°40'18
				max. Earth dist.	-4776 Mar 25 j 05:50	27°≈27'43	49.36787 AU
conjunction	-4784 Mar 17 j 10:52	19°≈47'44	-14°-51'-39	retrograde	-4776 Jul 05 j 18:26	28°≈57'32	
minimum elong	-4784 Mar 17 j 11:04	19°≈47'44	14°51'49	opposition	-4776 Sep 26 j 03:13	27°≈57'49	-14°-9'-10
max. Earth dist.	-4784 Mar 17 j 16:43	19°≈48'04	49.76149 AU	min. Earth dist.	-4776 Sep 26 j 08:00	27°≈57'36	47.39421 AU
retrograde	-4784 Jun 27 j 23:09	21°≈17'16		direct	-4776 Dec 16 j 17:42	26°≈58'10	
opposition	-4784 Sep 18 j 15:54	20°≈17'37	-15°-24'-18				
min. Earth dist.	-4784 Sep 18 j 11:51	20°≈17'48	47.81323 AU	conjunction	-4775 Mar 26 j 16:56	28°≈25'50	-13°-30'-3
direct	-4784 Dec 09 j 03:52	19°≈18'16		minimum elong	-4775 Mar 26 j 17:09	28°≈25'51	13°30'13
				max. Earth dist.	-4775 Mar 26 j 09:57	28°≈25'26	49.30335 AU
conjunction	-4783 Mar 18 j 16:52	20°≈45'25	-14°-43'-34	retrograde	-4775 Jul 06 j 23:16	29°≈55'28	
minimum elong	-4783 Mar 18 j 17:04	20°≈45'26	14°43'46	opposition	-4775 Sep 27 j 07:51	28°≈55'45	-13°-58'-35
max. Earth dist.	-4783 Mar 18 j 20:04	20°≈45'36	49.72579 AU	min. Earth dist.	-4775 Sep 27 j 14:53	28°≈55'25	47.32613 AU
retrograde	-4783 Jun 29 j 06:59	22°≈14'55		direct	-4775 Dec 17 j 23:40	27°≈56'05	
opposition	-4783 Sep 19 j 20:21	21°≈15'15	-15°-15'-49				
min. Earth dist.	-4783 Sep 19 j 17:38	21°≈15'23	47.77380 AU	conjunction	-4774 Mar 27 j 23:16	29°≈23'53	-13°-19'-44
direct	-4783 Dec 10 j 06:31	20°≈15'52		minimum elong	-4774 Mar 27 j 23:30	29°≈23'54	13°19'53
				max. Earth dist.	-4774 Mar 27 j 15:44	29°≈23'27	49.23435 AU
conjunction	-4782 Mar 19 j 22:54	21°≈43'02	-14°-35'-16		-4774 Apr 24 j 02:59	0°≈	
minimum elong	-4782 Mar 19 j 23:07	21°≈43'03	14°35'26	retrograde	-4774 Jul 08 j 05:08	0°≈53'36	
max. Earth dist.	-4782 Mar 20 j 01:16	21°≈43'10	49.68521 AU		-4774 Sep 23 j 04:39	30°≈	
retrograde	-4782 Jun 30 j 11:33	23°≈12'29		opposition	-4774 Sep 28 j 12:23	29°≈53'54	-13°-47'-46
opposition	-4782 Sep 21 j 00:46	22°≈12'48	-15°-7'-5	min. Earth dist.	-4774 Sep 28 j 20:25	29°≈53'31	47.25311 AU
min. Earth dist.	-4782 Sep 20 j 23:58	22°≈12'50	47.72974 AU	direct	-4774 Dec 19 j 04:16	28°≈54'11	
direct	-4782 Dec 11 j 12:03	21°≈13'21			-4773 Mar 12 j 21:36	0°≈	
conjunction	-4781 Mar 21 j 04:51	22°≈40'33	-14°-26'-43	conjunction	-4773 Mar 29 j 05:31	0°≈22'07	-13°-9'-11
minimum elong	-4781 Mar 21 j 05:03	22°≈40'34	14°26'54	minimum elong	-4773 Mar 29 j 05:44	0°≈22'08	13°09'19
max. Earth dist.	-4781 Mar 21 j 05:47	22°≈40'37	49.64055 AU	max. Earth dist.	-4773 Mar 28 j 19:13	0°≈21'32	49.16027 AU
retrograde	-4781 Jul 01 j 14:58	24°≈09'58		retrograde	-4773 Jul 09 j 13:36	1°≈51'55	
opposition	-4781 Sep 22 j 05:03	23°≈10'16	-14°-58'-6	opposition	-4773 Sep 29 j 17:03	0°≈52'12	-13°-36'-43
min. Earth dist.	-4781 Sep 22 j 04:30	23°≈10'18	47.68185 AU	min. Earth dist.	-4773 Sep 30 j 02:34	0°≈51'45	47.17491 AU
direct	-4781 Dec 12 j 18:22	22°≈10'46			-4773 Nov 23 j 20:38	30°≈	
				direct	-4773 Dec 20 j 06:28	29°≈52'26	
conjunction	-4780 Mar 21 j 10:42	23°≈38'00	-14°-17'-55		-4772 Jan 15 j 17:44	0°≈	
minimum elong	-4780 Mar 21 j 10:55	23°≈38'01	14°18'05				
max. Earth dist.	-4780 Mar 21 j 09:55	23°≈37'57	49.59216 AU	conjunction	-4772 Mar 29 j 11:57	1°≈20'30	-12°-58'-24
retrograde	-4780 Jul 01 j 19:30	25°≈07'25		minimum elong	-4772 Mar 29 j 12:10	1°≈20'31	12°58'33
opposition	-4780 Sep 22 j 09:33	24°≈07'41	-14°-48'-50	max. Earth dist.	-4772 Mar 29 j 00:32	1°≈19'51	49.08075 AU
min. Earth dist.	-4780 Sep 22 j 10:57	24°≈07'37	47.63052 AU	retrograde	-4772 Jul 09 j 19:28	2°≈50'22	
direct	-4780 Dec 13 j 00:04	23°≈08'08		opposition	-4772 Sep 29 j 21:50	1°≈50'38	-13°-25'-27
				min. Earth dist.	-4772 Sep 30 j 09:26	1°≈50'04	47.09115 AU
conjunction	-4779 Mar 22 j 16:48	24°≈35'24	-14°-8'-51	direct	-4772 Dec 20 j 11:49	0°≈50'48	



# Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 9

Attention, astronomical year style is used: The year -4771 in astronomical counting style is the year 4772 BCE in historical counting style.

conjunction	-4771 Mar 30 j 18:25	2° <del>18</del> '59	-12°-47'-24	retrograde	-4763 Jul 18 j 22:31	11° <del>40</del> '42	
minimum elong	-4771 Mar 30 j 18:38	2° <del>19</del> '00	12°47'32	opposition	-4763 Oct 08 j 17:20	10° <del>40</del> '28	-11°-32'-12
max. Earth dist.	-4771 Mar 30 j 05:12	2° <del>18</del> '14	48.99597 AU	min. Earth dist.	-4763 Oct 09 j 14:55	10° <del>39</del> '25	46.16111 AU
retrograde	-4771 Jul 10 j 23:57	3° <del>48</del> '55		direct	-4763 Dec 29 j 12:34	9° <del>39</del> '50	
opposition	-4771 Oct 01 j 02:23	2° <del>49</del> '08	-13°-13'-55	max. Earth dist.	-4762 Apr 08 j 05:13	11° <del>08</del> '07	48.06379 AU
min. Earth dist.	-4771 Oct 01 j 14:35	2° <del>48</del> '32	47.00227 AU				
direct	-4771 Dec 21 j 18:35	1° <del>49</del> '13		conjunction	-4762 Apr 09 j 05:56	11° <del>09</del> '33	-10°-56'-58
max. Earth dist.	-4770 Mar 31 j 09:33	3° <del>16</del> '40	48.90617 AU	minimum elong	-4762 Apr 09 j 06:09	11° <del>09</del> '34	10°57'04
				retrograde	-4762 Jul 20 j 06:04	12° <del>40</del> '34	
conjunction	-4770 Apr 01 j 00:51	3° <del>17</del> '32	-12°-36'-9	opposition	-4762 Oct 09 j 22:40	11° <del>40</del> '16	-11°-18'-16
minimum elong	-4770 Apr 01 j 01:04	3° <del>17</del> '33	12°36'18	min. Earth dist.	-4762 Oct 10 j 22:01	11° <del>39</del> '08	46.04040 AU
retrograde	-4770 Jul 12 j 04:13	4° <del>47</del> '32		direct	-4762 Dec 30 j 17:16	10° <del>39</del> '33	
opposition	-4770 Oct 02 j 07:13	3° <del>47</del> '42	-13°-2'-9	max. Earth dist.	-4761 Apr 09 j 10:27	12° <del>07</del> '58	47.94232 AU
min. Earth dist.	-4770 Oct 02 j 21:42	3° <del>47</del> '00	46.90878 AU				
direct	-4770 Dec 23 j 01:06	2° <del>47</del> '41		conjunction	-4761 Apr 10 j 12:53	12° <del>09</del> '30	-10°-43'-23
				minimum elong	-4761 Apr 10 j 13:07	12° <del>09</del> '31	10°43'30
conjunction	-4769 Apr 02 j 07:11	4° <del>16</del> '08	-12°-24'-40	retrograde	-4761 Jul 21 j 13:22	13° <del>40</del> '40	
minimum elong	-4769 Apr 02 j 07:24	4° <del>16</del> '08	12°24'48	opposition	-4761 Oct 11 j 03:59	12° <del>40</del> '19	-11°-4'-4
max. Earth dist.	-4769 Apr 01 j 15:30	4° <del>15</del> '14	48.81212 AU	min. Earth dist.	-4761 Oct 12 j 03:59	12° <del>39</del> '09	45.91484 AU
retrograde	-4769 Jul 13 j 08:18	5° <del>46</del> '13		direct	-4761 Dec 31 j 23:07	11° <del>39</del> '29	
opposition	-4769 Oct 03 j 11:55	4° <del>46</del> '18	-12°-50'-8				
min. Earth dist.	-4769 Oct 04 j 02:55	4° <del>45</del> '35	46.81121 AU	conjunction	-4760 Apr 10 j 20:10	13° <del>09</del> '41	-10°-29'-35
direct	-4769 Dec 24 j 07:44	3° <del>46</del> '12		minimum elong	-4760 Apr 10 j 20:23	13° <del>09</del> '42	10°29'40
				max. Earth dist.	-4760 Apr 09 j 15:31	13° <del>08</del> '01	47.81571 AU
conjunction	-4768 Apr 02 j 13:34	5° <del>14</del> '46	-12°-12'-56	retrograde	-4760 Jul 21 j 19:01	14° <del>41</del> '02	
minimum elong	-4768 Apr 02 j 13:47	5° <del>14</del> '47	12°13'04	opposition	-4760 Oct 11 j 09:25	13° <del>40</del> '35	-10°-49'-37
max. Earth dist.	-4768 Apr 01 j 19:33	5° <del>13</del> '44	48.71433 AU	min. Earth dist.	-4760 Oct 12 j 11:53	13° <del>39</del> '18	45.78419 AU
retrograde	-4768 Jul 13 j 17:17	6° <del>44</del> '57		direct	-4759 Jan 01 j 05:56	12° <del>39</del> '39	
opposition	-4768 Oct 03 j 16:36	5° <del>44</del> '58	-12°-37'-50	max. Earth dist.	-4759 Apr 10 j 22:12	14° <del>08</del> '21	47.68415 AU
min. Earth dist.	-4768 Oct 04 j 08:46	5° <del>44</del> '11	46.71028 AU				
direct	-4768 Dec 24 j 09:38	4° <del>44</del> '46		conjunction	-4759 Apr 12 j 03:39	14° <del>10</del> '04	-10°-15'-31
				minimum elong	-4759 Apr 12 j 03:51	14° <del>10</del> '05	10°15'38
conjunction	-4767 Apr 03 j 20:12	6° <del>13</del> '29	-12°00'-56	retrograde	-4759 Jul 22 j 23:20	15° <del>41</del> '36	
minimum elong	-4767 Apr 03 j 20:26	6° <del>13</del> '30	12°01'04	opposition	-4759 Oct 12 j 14:54	14° <del>41</del> '04	-10°-34'-54
max. Earth dist.	-4767 Apr 03 j 01:47	6° <del>12</del> '26	48.61327 AU	min. Earth dist.	-4759 Oct 13 j 18:03	14° <del>39</del> '44	45.64858 AU
retrograde	-4767 Jul 15 j 00:53	7° <del>43</del> '45		direct	-4758 Jan 02 j 13:49	13° <del>39</del> '59	
opposition	-4767 Oct 04 j 21:31	6° <del>43</del> '43	-12°-25'-16	max. Earth dist.	-4758 Apr 12 j 02:53	15° <del>08</del> '46	47.54785 AU
min. Earth dist.	-4767 Oct 05 j 15:12	6° <del>42</del> '52	46.60622 AU				
direct	-4767 Dec 25 j 13:18	5° <del>43</del> '25		conjunction	-4758 Apr 13 j 10:53	15° <del>10</del> '38	-10°-1'-13
max. Earth dist.	-4766 Apr 04 j 06:57	7° <del>11</del> '11	48.50943 AU	minimum elong	-4758 Apr 13 j 11:06	15° <del>10</del> '39	10°01'18
				retrograde	-4758 Jul 24 j 07:42	16° <del>42</del> '21	
conjunction	-4766 Apr 05 j 02:39	7° <del>12</del> '18	-11°-48'-40	opposition	-4758 Oct 13 j 20:28	15° <del>41</del> '43	-10°-19'-56
minimum elong	-4766 Apr 05 j 02:52	7° <del>12</del> '19	11°48'48	min. Earth dist.	-4758 Oct 15 j 01:07	15° <del>40</del> '19	45.50865 AU
retrograde	-4766 Jul 16 j 05:46	8° <del>42</del> '41		direct	-4757 Jan 03 j 17:47	14° <del>40</del> '30	
opposition	-4766 Oct 06 j 02:18	7° <del>42</del> '35	-12°-12'-25	max. Earth dist.	-4757 Apr 13 j 09:52	16° <del>09</del> '30	47.40738 AU
min. Earth dist.	-4766 Oct 06 j 20:01	7° <del>41</del> '44	46.49946 AU				
direct	-4766 Dec 26 j 19:18	6° <del>42</del> '12		conjunction	-4757 Apr 14 j 18:24	16° <del>11</del> '24	-9°-46'-39
max. Earth dist.	-4765 Apr 05 j 11:55	8° <del>10</del> '03	48.40283 AU	minimum elong	-4757 Apr 14 j 18:36	16° <del>11</del> '25	9°46'45
				retrograde	-4757 Jul 25 j 15:48	17° <del>43</del> '19	
conjunction	-4765 Apr 06 j 09:15	8° <del>11</del> '17	-11°-36'-8	opposition	-4757 Oct 15 j 02:06	16° <del>42</del> '34	-10°-4'-41
minimum elong	-4765 Apr 06 j 09:28	8° <del>11</del> '17	11°36'16	min. Earth dist.	-4757 Oct 16 j 08:19	16° <del>41</del> '05	45.36482 AU
retrograde	-4765 Jul 17 j 09:32	9° <del>41</del> '47		direct	-4756 Jan 04 j 22:22	15° <del>41</del> '12	
opposition	-4765 Oct 07 j 07:19	8° <del>41</del> '38	-11°-59'-17	max. Earth dist.	-4756 Apr 13 j 15:48	17° <del>10</del> '23	47.26348 AU
min. Earth dist.	-4765 Oct 08 j 02:54	8° <del>40</del> '41	46.38999 AU				
direct	-4765 Dec 28 j 02:45	7° <del>41</del> '10		conjunction	-4756 Apr 15 j 01:52	17° <del>12</del> '22	-9°-31'-49
				minimum elong	-4756 Apr 15 j 02:04	17° <del>12</del> '23	9°31'53
conjunction	-4764 Apr 06 j 16:00	9° <del>10</del> '27	-11°-23'-20	retrograde	-4756 Jul 25 j 23:40	18° <del>44</del> '30	
minimum elong	-4764 Apr 06 j 16:12	9° <del>10</del> '28	11°23'28	opposition	-4756 Oct 15 j 07:46	17° <del>43</del> '38	-9°-49'-8
max. Earth dist.	-4764 Apr 05 j 18:30	9° <del>09</del> '12	48.29347 AU	min. Earth dist.	-4756 Oct 16 j 14:12	17° <del>42</del> '08	45.21778 AU
retrograde	-4764 Jul 17 j 14:03	10° <del>41</del> '07		direct	-4755 Jan 05 j 03:45	16° <del>42</del> '07	
opposition	-4764 Oct 07 j 12:19	9° <del>40</del> '55	-11°-45'-53	max. Earth dist.	-4755 Apr 14 j 21:51	18° <del>11</del> '29	47.11637 AU
min. Earth dist.	-4764 Oct 08 j 08:26	9° <del>39</del> '57	46.27735 AU				
direct	-4764 Dec 28 j 09:39	8° <del>40</del> '22		conjunction	-4755 Apr 16 j 09:31	18° <del>13</del> '35	-9°-16'-42
				minimum elong	-4755 Apr 16 j 09:43	18° <del>13</del> '36	9°16'47
conjunction	-4763 Apr 07 j 22:50	10° <del>09</del> '52	-11°-10'-17	retrograde	-4755 Jul 27 j 04:39	19° <del>45</del> '56	
minimum elong	-4763 Apr 07 j 23:04	10° <del>09</del> '53	11°10'23	opposition	-4755 Oct 16 j 13:39	18° <del>44</del> '58	-9°-33'-19
max. Earth dist.	-4763 Apr 06 j 22:55	10° <del>08</del> '29	48.18068 AU	min. Earth dist.	-4755 Oct 17 j 22:00	18° <del>43</del> '22	45.06789 AU



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 10

Attention, astronomical year style is used: The year -4754 in astronomical counting style is the year 4755 BCE in historical counting style.

direct	-4754 Jan 06 j 12:09	17° <del>✕</del> 43'19		conjunction	-4746 Apr 26 j 13:15	27° <del>✕</del> 42'10	-6°-48'-15
max. Earth dist.	-4754 Apr 16 j 05:33	19° <del>✕</del> 12'59	46.96674 AU	minimum elong	-4746 Apr 26 j 13:25	27° <del>✕</del> 42'10	6°48'18
				retrograde	-4746 Aug 06 j 06:10	29° <del>✕</del> 17'15	
conjunction	-4754 Apr 17 j 17:17	19° <del>✕</del> 15'05	-9°-1'-19	opposition	-4746 Oct 26 j 00:52	28° <del>✕</del> 15'16	-6°-57'-41
minimum elong	-4754 Apr 17 j 17:30	19° <del>✕</del> 15'06	9°01'23	min. Earth dist.	-4746 Oct 27 j 19:22	28° <del>✕</del> 13'07	43.57181 AU
retrograde	-4754 Jul 28 j 09:14	20° <del>✕</del> 47'41		direct	-4745 Jan 15 j 22:09	27° <del>✕</del> 12'13	
opposition	-4754 Oct 17 j 19:37	19° <del>✕</del> 46'38	-9°-17'-11	max. Earth dist.	-4745 Apr 25 j 21:07	28° <del>✕</del> 44'21	45.46584 AU
min. Earth dist.	-4754 Oct 19 j 04:03	19° <del>✕</del> 45'01	44.91553 AU				
direct	-4753 Jan 07 j 20:39	18° <del>✕</del> 44'51		conjunction	-4745 Apr 27 j 22:24	28° <del>✕</del> 47'20	-6°-30'-24
max. Earth dist.	-4753 Apr 17 j 11:02	20° <del>✕</del> 14'41	46.81470 AU	minimum elong	-4745 Apr 27 j 22:34	28° <del>✕</del> 47'21	6°30'25
					-4745 Jun 23 j 06:38	0° <del>Υ</del>	
conjunction	-4753 Apr 19 j 00:54	20° <del>✕</del> 16'56	-8°-45'-39	retrograde	-4745 Aug 07 j 14:37	0° <del>Υ</del> 22'45	
minimum elong	-4753 Apr 19 j 01:06	20° <del>✕</del> 16'57	8°45'44		-4745 Sep 22 j 03:39	30° <del>℞</del> <del>✕</del>	
retrograde	-4753 Jul 29 j 18:09	21° <del>✕</del> 49'49		opposition	-4745 Oct 27 j 08:20	29° <del>✕</del> 20'35	-6°-38'-57
opposition	-4753 Oct 19 j 01:47	20° <del>✕</del> 48'40	-9°00'-46	min. Earth dist.	-4745 Oct 29 j 04:56	29° <del>✕</del> 18'19	43.38461 AU
min. Earth dist.	-4753 Oct 20 j 11:28	20° <del>✕</del> 47'00	44.76083 AU	direct	-4744 Jan 17 j 07:04	28° <del>✕</del> 17'19	
direct	-4752 Jan 09 j 00:40	19° <del>✕</del> 46'45		max. Earth dist.	-4744 Apr 26 j 06:06	29° <del>✕</del> 49'48	45.27823 AU
max. Earth dist.	-4752 Apr 17 j 18:53	21° <del>✕</del> 16'55	46.66010 AU				
				conjunction	-4744 Apr 28 j 07:53	29° <del>✕</del> 52'51	-6°-12'-15
conjunction	-4752 Apr 19 j 09:02	21° <del>✕</del> 19'11	-8°-29'-42	minimum elong	-4744 Apr 28 j 08:03	29° <del>✕</del> 52'51	6°12'18
minimum elong	-4752 Apr 19 j 09:14	21° <del>✕</del> 19'12	8°29'46		-4744 May 03 j 05:21	0° <del>Υ</del>	
retrograde	-4752 Jul 30 j 02:38	22° <del>✕</del> 52'22		retrograde	-4744 Aug 07 j 21:26	1° <del>Υ</del> 28'36	
opposition	-4752 Oct 19 j 07:58	21° <del>✕</del> 51'08	-8°-44'-2	opposition	-4744 Oct 27 j 15:43	0° <del>Υ</del> 26'14	-6°-19'-54
min. Earth dist.	-4752 Oct 20 j 18:56	21° <del>✕</del> 49'24	44.60332 AU	min. Earth dist.	-4744 Oct 29 j 12:34	0° <del>Υ</del> 23'58	43.19416 AU
direct	-4751 Jan 09 j 06:01	20° <del>✕</del> 49'06			-4744 Nov 18 j 19:52	30° <del>℞</del> <del>✕</del>	
max. Earth dist.	-4751 Apr 19 j 01:31	22° <del>✕</del> 19'32	46.50258 AU	direct	-4743 Jan 17 j 17:46	29° <del>✕</del> 22'45	
					-4743 Mar 17 j 18:25	0° <del>Υ</del>	
conjunction	-4751 Apr 20 j 17:15	22° <del>✕</del> 21'54	-8°-13'-28	max. Earth dist.	-4743 Apr 27 j 13:25	0° <del>Υ</del> 55'32	45.08754 AU
minimum elong	-4751 Apr 20 j 17:26	22° <del>✕</del> 21'55	8°13'32				
retrograde	-4751 Jul 31 j 12:58	23° <del>✕</del> 55'23		conjunction	-4743 Apr 29 j 17:28	0° <del>Υ</del> 58'43	-5°-53'-50
opposition	-4751 Oct 20 j 14:18	22° <del>✕</del> 54'04	-8°-27'-2	minimum elong	-4743 Apr 29 j 17:37	0° <del>Υ</del> 58'43	5°53'51
min. Earth dist.	-4751 Oct 22 j 01:50	22° <del>✕</del> 52'18	44.44259 AU	retrograde	-4743 Aug 09 j 06:12	2° <del>Υ</del> 34'50	
direct	-4750 Jan 10 j 11:16	21° <del>✕</del> 51'54		opposition	-4743 Oct 28 j 23:31	1° <del>Υ</del> 32'18	-6°00'-33
max. Earth dist.	-4750 Apr 20 j 08:10	23° <del>✕</del> 22'38	46.34122 AU	min. Earth dist.	-4743 Oct 30 j 21:55	1° <del>Υ</del> 29'56	43.00109 AU
				direct	-4742 Jan 19 j 01:36	0° <del>Υ</del> 28'35	
conjunction	-4750 Apr 22 j 01:37	23° <del>✕</del> 25'06	-7°-56'-58	max. Earth dist.	-4742 Apr 28 j 23:08	2° <del>Υ</del> 01'47	44.89432 AU
minimum elong	-4750 Apr 22 j 01:48	23° <del>✕</del> 25'06	7°57'01				
retrograde	-4750 Aug 01 j 21:35	24° <del>✕</del> 58'54		conjunction	-4742 May 01 j 03:12	2° <del>Υ</del> 04'59	-5°-35'-7
opposition	-4750 Oct 21 j 20:58	23° <del>✕</del> 57'29	-8°-9'-44	minimum elong	-4742 May 01 j 03:20	2° <del>Υ</del> 05'00	5°35'08
min. Earth dist.	-4750 Oct 23 j 10:49	23° <del>✕</del> 55'35	44.27780 AU	retrograde	-4742 Aug 10 j 14:05	3° <del>Υ</del> 41'31	
direct	-4749 Jan 11 j 18:29	22° <del>✕</del> 55'11		opposition	-4742 Oct 30 j 07:30	2° <del>Υ</del> 38'48	-5°-40'-53
max. Earth dist.	-4749 Apr 21 j 16:02	24° <del>✕</del> 26'14	46.17563 AU	min. Earth dist.	-4742 Nov 01 j 06:34	2° <del>Υ</del> 36'23	42.80562 AU
				direct	-4741 Jan 20 j 10:12	1° <del>Υ</del> 34'52	
conjunction	-4749 Apr 23 j 10:16	24° <del>✕</del> 28'46	-7°-40'-11	max. Earth dist.	-4741 Apr 30 j 07:25	3° <del>Υ</del> 08'26	44.69902 AU
minimum elong	-4749 Apr 23 j 10:27	24° <del>✕</del> 28'46	7°40'14				
retrograde	-4749 Aug 03 j 02:48	26° <del>✕</del> 02'53		conjunction	-4741 May 02 j 13:04	3° <del>Υ</del> 11'45	-5°-16'-6
opposition	-4749 Oct 23 j 03:38	25° <del>✕</del> 01'21	-7°-52'-9	minimum elong	-4741 May 02 j 13:12	3° <del>Υ</del> 11'46	5°16'07
min. Earth dist.	-4749 Oct 24 j 17:59	24° <del>✕</del> 59'26	44.10842 AU	retrograde	-4741 Aug 12 j 02:04	4° <del>Υ</del> 48'42	
direct	-4748 Jan 13 j 03:56	23° <del>✕</del> 58'53		opposition	-4741 Oct 31 j 15:31	3° <del>Υ</del> 45'49	-5°-20'-55
max. Earth dist.	-4748 Apr 21 j 22:03	25° <del>✕</del> 30'08	46.00522 AU	min. Earth dist.	-4741 Nov 02 j 15:03	3° <del>Υ</del> 43'23	42.60820 AU
				direct	-4740 Jan 21 j 15:52	2° <del>Υ</del> 41'41	
conjunction	-4748 Apr 23 j 19:03	25° <del>✕</del> 32'51	-7°-23'-9	max. Earth dist.	-4740 Apr 30 j 16:37	4° <del>Υ</del> 15'42	44.50146 AU
minimum elong	-4748 Apr 23 j 19:14	25° <del>✕</del> 32'52	7°23'12				
retrograde	-4748 Aug 03 j 10:36	27° <del>✕</del> 07'18		conjunction	-4740 May 02 j 23:20	4° <del>Υ</del> 19'05	-4°-56'-48
opposition	-4748 Oct 23 j 10:37	26° <del>✕</del> 05'38	-7°-34'-17	minimum elong	-4740 May 02 j 23:28	4° <del>Υ</del> 19'05	4°56'49
min. Earth dist.	-4748 Oct 25 j 02:56	26° <del>✕</del> 03'36	43.93421 AU	retrograde	-4740 Aug 12 j 13:49	5° <del>Υ</del> 56'29	
direct	-4747 Jan 13 j 10:51	25° <del>✕</del> 03'00		opposition	-4740 Oct 31 j 23:58	4° <del>Υ</del> 53'26	-5°00'-37
max. Earth dist.	-4747 Apr 23 j 06:28	26° <del>✕</del> 34'34	45.82985 AU	min. Earth dist.	-4740 Nov 03 j 01:22	4° <del>Υ</del> 50'54	42.40840 AU
				direct	-4739 Jan 21 j 23:18	3° <del>Υ</del> 49'06	
conjunction	-4747 Apr 25 j 04:10	26° <del>✕</del> 37'20	-7°-5'-50	max. Earth dist.	-4739 May 02 j 02:29	5° <del>Υ</del> 23'36	44.30142 AU
minimum elong	-4747 Apr 25 j 04:20	26° <del>✕</del> 37'21	7°05'52				
retrograde	-4747 Aug 04 j 19:16	28° <del>✕</del> 12'06		conjunction	-4739 May 04 j 09:48	5° <del>Υ</del> 27'03	-4°-37'-12
opposition	-4747 Oct 24 j 17:42	27° <del>✕</del> 10'17	-7°-16'-8	minimum elong	-4739 May 04 j 09:56	5° <del>Υ</del> 27'04	4°37'12
min. Earth dist.	-4747 Oct 26 j 11:32	27° <del>✕</del> 08'10	43.75512 AU	retrograde	-4739 Aug 13 j 23:05	7° <del>Υ</del> 04'55	
direct	-4746 Jan 14 j 17:09	26° <del>✕</del> 07'27		opposition	-4739 Nov 02 j 08:27	6° <del>Υ</del> 01'44	-4°-40'00
max. Earth dist.	-4746 Apr 24 j 13:29	27° <del>✕</del> 39'16	45.64996 AU	min. Earth dist.	-4739 Nov 04 j 09:58	5° <del>Υ</del> 59'10	42.20585 AU
				direct	-4738 Jan 23 j 09:33	4° <del>Υ</del> 57'12	



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Attention, astronomical year style is used: The year -4738 in astronomical counting style is the year 4739 BCE in historical counting style.

max. Earth dist.	-4738 May 03 j 10:54	6°V32'07	44.09817 AU	minimum elong	-4730 May 15 j 19:59	16°V09'14	1°27'49
				retrograde	-4730 Aug 25 j 04:37	17°V51'57	
conjunction	-4738 May 05 j 20:30	6°V35'43	-4°-17'-18	opposition	-4730 Nov 13 j 01:42	16°V46'45	-1°-20'-36
minimum elong	-4738 May 05 j 20:37	6°V35'44	4°17'18	min. Earth dist.	-4730 Nov 15 j 14:05	16°V43'31	40.22179 AU
retrograde	-4738 Aug 15 j 08:35	8°V14'05		direct	-4729 Feb 03 j 01:53	15°V39'48	
opposition	-4738 Nov 03 j 17:23	7°V10'44	-4°-19'-5	max. Earth dist.	-4729 May 14 j 13:05	17°V19'29	42.10612 AU
min. Earth dist.	-4738 Nov 05 j 20:54	7°V08'03	41.99997 AU				
direct	-4737 Jan 24 j 18:50	6°V06'00		conjunction	-4729 May 17 j 08:56	17°V23'57	-1°-5'-24
max. Earth dist.	-4737 May 04 j 21:35	7°V41'27	43.89120 AU	minimum elong	-4729 May 17 j 08:58	17°V23'57	1°05'21
				retrograde	-4729 Aug 26 j 19:23	19°V07'18	
conjunction	-4737 May 07 j 07:28	7°V45'06	-3°-57'-7	opposition	-4729 Nov 14 j 13:00	18°V01'52	0°-56'-53
minimum elong	-4737 May 07 j 07:35	7°V45'06	3°57'07	min. Earth dist.	-4729 Nov 17 j 01:11	17°V58'37	39.98964 AU
retrograde	-4737 Aug 16 j 17:40	9°V23'58		direct	-4728 Feb 04 j 11:46	16°V54'36	
opposition	-4737 Nov 05 j 02:33	8°V20'27	-3°-57'-52	max. Earth dist.	-4728 May 15 j 01:11	18°V34'55	41.87356 AU
min. Earth dist.	-4737 Nov 07 j 07:06	8°V17'42	41.79002 AU				
direct	-4736 Jan 26 j 04:30	7°V15'29		conjunction	-4728 May 17 j 22:29	18°V39'30	0°-42'-39
max. Earth dist.	-4736 May 05 j 06:24	8°V51'21	43.68004 AU	minimum elong	-4728 May 17 j 22:30	18°V39'30	0°42'35
				retrograde	-4728 Aug 27 j 09:28	20°V23'31	
conjunction	-4736 May 07 j 18:45	8°V55'10	-3°-36'-40	opposition	-4728 Nov 15 j 00:40	19°V17'50	0°-32'-52
minimum elong	-4736 May 07 j 18:51	8°V55'10	3°36'39	min. Earth dist.	-4728 Nov 17 j 14:37	19°V14'29	39.75631 AU
retrograde	-4736 Aug 17 j 06:23	10°V34'34		direct	-4727 Feb 05 j 00:17	18°V10'17	
opposition	-4736 Nov 05 j 11:50	9°V30'50	-3°-36'-20	max. Earth dist.	-4727 May 16 j 15:20	19°V51'22	41.63969 AU
min. Earth dist.	-4736 Nov 07 j 17:32	9°V28'02	41.57592 AU				
direct	-4735 Jan 26 j 11:07	8°V25'38		conjunction	-4727 May 19 j 12:27	19°V55'58	0°-19'-37
max. Earth dist.	-4735 May 06 j 16:51	10°V02'00	43.46450 AU	minimum elong	-4727 May 19 j 12:27	19°V55'58	0°19'35
				retrograde	-4727 Aug 28 j 22:07	21°V40'40	
conjunction	-4735 May 09 j 06:28	10°V05'55	-3°-15'-55	opposition	-4727 Nov 16 j 12:44	20°V34'44	0°-8'-32
minimum elong	-4735 May 09 j 06:34	10°V05'55	3°15'54	min. Earth dist.	-4727 Nov 19 j 02:46	20°V31'22	39.52144 AU
retrograde	-4735 Aug 18 j 18:34	11°V45'50		direct	-4726 Feb 06 j 14:55	19°V26'54	
opposition	-4735 Nov 06 j 21:38	10°V41'53	-3°-14'-29	asc. node	-4726 Mar 24 j 06:45	19°V51'38	
min. Earth dist.	-4735 Nov 09 j 05:17	10°V38'58	41.35759 AU	max. Earth dist.	-4726 May 18 j 03:19	21°V08'37	41.40390 AU
direct	-4734 Jan 27 j 20:20	9°V36'25					
max. Earth dist.	-4734 May 08 j 03:33	11°V13'18	43.24503 AU	conjunction	-4726 May 21 j 02:32	21°V13'23	0°03'46
				minimum elong	-4726 May 21 j 02:31	21°V13'23	0°03'51
conjunction	-4734 May 10 j 18:08	11°V17'18	-2°-54'-52	behind sun begin	-4726 May 20 j 20:03	21°V12'59	
minimum elong	-4734 May 10 j 18:13	11°V17'18	2°54'52	behind sun end	-4726 May 21 j 08:58	21°V13'48	
retrograde	-4734 Aug 20 j 07:05	12°V57'44		retrograde	-4726 Aug 30 j 12:40	22°V58'49	
opposition	-4734 Nov 08 j 07:27	11°V53'34	-2°-52'-20	opposition	-4726 Nov 18 j 01:11	21°V52'38	0°16'05
min. Earth dist.	-4734 Nov 10 j 15:23	11°V50'37	41.13556 AU	min. Earth dist.	-4726 Nov 20 j 16:39	21°V49'10	39.28457 AU
direct	-4733 Jan 29 j 07:55	10°V47'49		direct	-4725 Feb 08 j 02:26	20°V44'30	
max. Earth dist.	-4733 May 09 j 13:25	12°V25'10	43.02192 AU	max. Earth dist.	-4725 May 19 j 17:47	22°V26'58	41.16559 AU
conjunction	-4733 May 12 j 06:11	12°V29'19	-2°-33'-33	conjunction	-4725 May 22 j 17:18	22°V31'48	0°27'17
minimum elong	-4733 May 12 j 06:15	12°V29'20	2°33'33	minimum elong	-4725 May 22 j 17:18	22°V31'48	0°27'21
retrograde	-4733 Aug 21 j 18:42	14°V10'18		retrograde	-4725 Sep 01 j 01:15	24°V17'58	
opposition	-4733 Nov 09 j 17:32	13°V05'52	-2°-29'-52	opposition	-4725 Nov 19 j 14:01	23°V11'32	0°41'00
min. Earth dist.	-4733 Nov 12 j 03:32	13°V02'49	40.91039 AU	min. Earth dist.	-4725 Nov 22 j 06:40	23°V07'59	39.04495 AU
direct	-4732 Jan 30 j 19:06	11°V59'49		direct	-4724 Feb 09 j 15:12	22°V03'05	
max. Earth dist.	-4732 May 10 j 01:43	13°V37'46	42.79592 AU	max. Earth dist.	-4724 May 20 j 07:12	23°V46'14	40.92442 AU
conjunction	-4732 May 12 j 18:34	13°V41'58	-2°-11'-57	conjunction	-4724 May 23 j 08:25	23°V51'13	0°51'07
minimum elong	-4732 May 12 j 18:38	13°V41'58	2°11'54	minimum elong	-4724 May 23 j 08:23	23°V51'13	0°51'13
retrograde	-4732 Aug 22 j 03:37	15°V23'30		retrograde	-4724 Sep 01 j 18:00	25°V38'09	
opposition	-4732 Nov 10 j 03:57	14°V18'49	-2°-7'-5	opposition	-4724 Nov 20 j 03:15	24°V31'25	1°06'13
min. Earth dist.	-4732 Nov 12 j 14:15	14°V15'43	40.68257 AU	min. Earth dist.	-4724 Nov 22 j 20:28	24°V27'50	38.80243 AU
direct	-4731 Jan 31 j 07:39	13°V12'28		direct	-4723 Feb 10 j 02:24	23°V22'37	
max. Earth dist.	-4731 May 11 j 12:15	14°V50'54	42.56755 AU	max. Earth dist.	-4723 May 21 j 21:20	25°V06'31	40.68000 AU
conjunction	-4731 May 14 j 07:03	14°V55'15	-1°-50'-3	conjunction	-4723 May 24 j 23:59	25°V11'38	1°15'13
minimum elong	-4731 May 14 j 07:06	14°V55'15	1°50'01	minimum elong	-4723 May 24 j 23:57	25°V11'38	1°15'18
retrograde	-4731 Aug 23 j 15:38	16°V37'22		retrograde	-4723 Sep 03 j 10:47	26°V59'19	
opposition	-4731 Nov 11 j 14:36	15°V32'26	-1°-44'00	opposition	-4723 Nov 21 j 17:02	25°V52'18	1°31'43
min. Earth dist.	-4731 Nov 14 j 01:50	15°V29'16	40.45291 AU	min. Earth dist.	-4723 Nov 24 j 12:17	25°V48'34	38.55689 AU
direct	-4730 Feb 01 j 16:58	14°V25'46		direct	-4722 Feb 11 j 14:26	24°V43'09	
max. Earth dist.	-4730 May 13 j 00:55	16°V04'51	42.33740 AU	max. Earth dist.	-4722 May 23 j 12:46	26°V27'51	40.43280 AU
conjunction	-4730 May 15 j 19:57	16°V09'14	-1°-27'-52	conjunction	-4722 May 26 j 15:54	26°V33'02	1°39'35



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 12

Attention, astronomical year style is used: The year -4722 in astronomical counting style is the year 4723 BCE in historical counting style.

minimum elong	-4722 May 26 j 15:50	26° $\Upsilon$ 33'01	1°39'40	minimum elong	-4714 Jun 07 j 14:21	8° $\text{8}$ 04'01	5°02'27
retrograde	-4722 Sep 05 j 02:21	28° $\Upsilon$ 21'30		retrograde	-4714 Sep 17 j 03:00	9° $\text{8}$ 59'50	
opposition	-4722 Nov 23 j 07:03	27° $\Upsilon$ 14'10	1°57'30	opposition	-4714 Dec 04 j 16:30	8° $\text{8}$ 49'53	5°32'28
min. Earth dist.	-4722 Nov 26 j 02:17	27° $\Upsilon$ 10'25	38.30880 AU	min. Earth dist.	-4714 Dec 07 j 17:06	8° $\text{8}$ 45'39	36.29368 AU
direct	-4721 Feb 13 j 06:17	26° $\Upsilon$ 04'38		direct	-4713 Feb 24 j 12:59	7° $\text{8}$ 37'19	
max. Earth dist.	-4721 May 25 j 02:52	27° $\Upsilon$ 50'03	40.18309 AU	max. Earth dist.	-4713 Jun 06 j 01:46	9° $\text{8}$ 30'26	38.15794 AU
conjunction	-4721 May 28 j 08:04	27° $\Upsilon$ 55'25	2°04'11	conjunction	-4713 Jun 09 j 10:48	9° $\text{8}$ 36'28	5°28'26
minimum elong	-4721 May 28 j 08:00	27° $\Upsilon$ 55'25	2°04'17	minimum elong	-4713 Jun 09 j 10:36	9° $\text{8}$ 36'27	5°28'36
retrograde	-4721 Sep 06 j 18:33	29° $\Upsilon$ 44'41		retrograde	-4713 Sep 18 j 22:13	11° $\text{8}$ 33'19	
opposition	-4721 Nov 24 j 21:35	28° $\Upsilon$ 37'01	2°23'33	opposition	-4713 Dec 06 j 11:15	10° $\text{8}$ 23'03	6°00'13
min. Earth dist.	-4721 Nov 27 j 18:30	28° $\Upsilon$ 33'10	38.05862 AU	min. Earth dist.	-4713 Dec 09 j 12:44	10° $\text{8}$ 18'44	36.04068 AU
direct	-4720 Feb 14 j 21:19	27° $\Upsilon$ 27'07		direct	-4712 Feb 26 j 07:03	9° $\text{8}$ 10'06	
max. Earth dist.	-4720 May 25 j 19:54	29° $\Upsilon$ 13'25	39.93142 AU	max. Earth dist.	-4712 Jun 06 j 21:15	11° $\text{8}$ 04'13	37.90283 AU
conjunction	-4720 May 29 j 00:52	29° $\Upsilon$ 18'49	2°29'02	conjunction	-4712 Jun 10 j 07:36	11° $\text{8}$ 10'24	5°54'41
minimum elong	-4720 May 29 j 00:47	29° $\Upsilon$ 18'49	2°29'08	minimum elong	-4712 Jun 10 j 07:24	11° $\text{8}$ 10'23	5°54'50
	-4720 Jun 23 j 01:07	0° $\text{8}$		retrograde	-4712 Sep 19 j 19:33	13° $\text{8}$ 08'21	
retrograde	-4720 Sep 07 j 08:59	1° $\text{8}$ 08'55		opposition	-4712 Dec 07 j 06:27	11° $\text{8}$ 57'43	6°28'07
opposition	-4720 Nov 25 j 12:28	0° $\text{8}$ 00'55	2°49'52	min. Earth dist.	-4712 Dec 10 j 08:13	11° $\text{8}$ 53'22	35.78660 AU
	-4720 Nov 26 j 04:46	30° $\text{8}$ $\Upsilon$		direct	-4711 Feb 27 j 00:19	10° $\text{8}$ 44'21	
min. Earth dist.	-4720 Nov 28 j 09:50	29° $\Upsilon$ 57'00	37.80687 AU	max. Earth dist.	-4711 Jun 08 j 17:56	12° $\text{8}$ 39'33	37.64630 AU
direct	-4719 Feb 15 j 13:24	28° $\Upsilon$ 50'38		conjunction	-4711 Jun 12 j 05:10	12° $\text{8}$ 45'52	6°21'03
	-4719 May 04 j 13:04	0° $\text{8}$		minimum elong	-4711 Jun 12 j 04:56	12° $\text{8}$ 45'51	6°21'13
max. Earth dist.	-4719 May 27 j 11:24	0° $\text{8}$ 37'43	39.67853 AU	retrograde	-4711 Sep 21 j 17:47	14° $\text{8}$ 44'54	
conjunction	-4719 May 30 j 17:55	0° $\text{8}$ 43'16	2°54'06	opposition	-4711 Dec 09 j 02:34	13° $\text{8}$ 33'53	6°56'08
minimum elong	-4719 May 30 j 17:49	0° $\text{8}$ 43'16	2°54'12	min. Earth dist.	-4711 Dec 12 j 05:52	13° $\text{8}$ 29'25	35.53132 AU
retrograde	-4719 Sep 09 j 02:36	2° $\text{8}$ 34'14		direct	-4710 Feb 28 j 18:08	12° $\text{8}$ 20'05	
opposition	-4719 Nov 27 j 03:52	1° $\text{8}$ 25'54	3°16'26	max. Earth dist.	-4710 Jun 10 j 15:41	14° $\text{8}$ 16'26	37.38874 AU
min. Earth dist.	-4719 Nov 30 j 01:41	1° $\text{8}$ 21'56	37.55447 AU	conjunction	-4710 Jun 14 j 03:02	14° $\text{8}$ 22'48	6°47'29
direct	-4718 Feb 17 j 02:57	0° $\text{8}$ 15'13		minimum elong	-4710 Jun 14 j 02:47	14° $\text{8}$ 22'47	6°47'38
max. Earth dist.	-4718 May 29 j 04:40	2° $\text{8}$ 03'14	39.42498 AU		-4710 Jul 04 j 16:48	15° $\text{8}$	
conjunction	-4718 Jun 01 j 11:22	2° $\text{8}$ 08'50	3°19'22	retrograde	-4710 Sep 23 j 17:23	16° $\text{8}$ 22'57	
minimum elong	-4718 Jun 01 j 11:15	2° $\text{8}$ 08'50	3°19'29	opposition	-4710 Dec 10 j 23:04	15° $\text{8}$ 11'31	7°24'15
retrograde	-4718 Sep 10 j 19:59	4° $\text{8}$ 00'42		min. Earth dist.	-4710 Dec 14 j 01:58	15° $\text{8}$ 07'04	35.27521 AU
opposition	-4718 Nov 28 j 19:51	2° $\text{8}$ 52'02	3°43'14		-4710 Dec 19 j 00:49	15° $\text{8}$	
min. Earth dist.	-4718 Dec 01 j 18:42	2° $\text{8}$ 47'59	37.30181 AU	direct	-4709 Mar 02 j 14:26	13° $\text{8}$ 57'15	
direct	-4717 Feb 18 j 17:20	1° $\text{8}$ 40'58		max. Earth dist.	-4709 May 12 j 10:23	15° $\text{8}$	
max. Earth dist.	-4717 May 30 j 22:24	3° $\text{8}$ 29'56	39.17152 AU		-4709 Jun 12 j 12:49	15° $\text{8}$ 54'41	37.13034 AU
conjunction	-4717 Jun 03 j 05:19	3° $\text{8}$ 35'36	3°44'51	conjunction	-4709 Jun 16 j 01:40	16° $\text{8}$ 01'13	7°13'59
minimum elong	-4717 Jun 03 j 05:12	3° $\text{8}$ 35'35	3°44'58	minimum elong	-4709 Jun 16 j 01:24	16° $\text{8}$ 01'11	7°14'09
retrograde	-4717 Sep 12 j 16:27	5° $\text{8}$ 28'23		retrograde	-4709 Sep 25 j 17:01	18° $\text{8}$ 02'29	
opposition	-4717 Nov 30 j 12:03	4° $\text{8}$ 19'23	4°10'15	opposition	-4709 Dec 12 j 20:09	16° $\text{8}$ 50'38	7°52'27
min. Earth dist.	-4717 Dec 03 j 10:25	4° $\text{8}$ 15'22	37.04950 AU	min. Earth dist.	-4709 Dec 16 j 00:37	16° $\text{8}$ 46'03	35.01880 AU
direct	-4716 Feb 20 j 08:37	3° $\text{8}$ 07'56		direct	-4708 Mar 03 j 10:54	15° $\text{8}$ 35'54	
max. Earth dist.	-4716 May 31 j 15:47	4° $\text{8}$ 57'52	38.91823 AU	max. Earth dist.	-4708 Jun 13 j 12:49	17° $\text{8}$ 34'33	36.87183 AU
conjunction	-4716 Jun 03 j 23:55	5° $\text{8}$ 03'40	4°10'30	conjunction	-4708 Jun 17 j 00:59	17° $\text{8}$ 41'06	7°40'31
minimum elong	-4716 Jun 03 j 23:46	5° $\text{8}$ 03'39	4°10'37	minimum elong	-4708 Jun 17 j 00:42	17° $\text{8}$ 41'05	7°40'40
retrograde	-4716 Sep 13 j 12:15	6° $\text{8}$ 57'25		retrograde	-4708 Sep 26 j 16:12	19° $\text{8}$ 43'30	
opposition	-4716 Dec 01 j 05:03	5° $\text{8}$ 48'06	4°37'28	opposition	-4708 Dec 13 j 18:01	18° $\text{8}$ 31'14	8°20'40
min. Earth dist.	-4716 Dec 04 j 04:54	5° $\text{8}$ 43'58	36.79755 AU	min. Earth dist.	-4708 Dec 16 j 22:14	18° $\text{8}$ 26'38	34.76264 AU
direct	-4715 Feb 21 j 00:20	4° $\text{8}$ 36'17		direct	-4707 Mar 05 j 11:05	17° $\text{8}$ 16'00	
max. Earth dist.	-4715 Jun 02 j 11:24	6° $\text{8}$ 27'18	38.66517 AU	max. Earth dist.	-4707 Jun 15 j 11:11	19° $\text{8}$ 15'47	36.61390 AU
conjunction	-4715 Jun 05 j 18:58	6° $\text{8}$ 33'07	4°36'20	conjunction	-4707 Jun 19 j 00:36	19° $\text{8}$ 22'29	8°07'02
minimum elong	-4715 Jun 05 j 18:49	6° $\text{8}$ 33'06	4°36'28	minimum elong	-4707 Jun 19 j 00:18	19° $\text{8}$ 22'28	8°07'13
retrograde	-4715 Sep 15 j 06:48	8° $\text{8}$ 27'52		retrograde	-4707 Sep 28 j 17:14	21° $\text{8}$ 26'03	
opposition	-4715 Dec 02 j 22:30	7° $\text{8}$ 18'15	5°04'53	opposition	-4707 Dec 15 j 16:29	20° $\text{8}$ 13'21	8°48'52
min. Earth dist.	-4715 Dec 05 j 22:04	7° $\text{8}$ 14'06	36.54570 AU	min. Earth dist.	-4707 Dec 18 j 21:02	20° $\text{8}$ 08'42	34.50773 AU
direct	-4714 Feb 22 j 19:41	6° $\text{8}$ 06'04		direct	-4706 Mar 07 j 08:44	18° $\text{8}$ 57'38	
max. Earth dist.	-4714 Jun 04 j 05:15	7° $\text{8}$ 58'02	38.41192 AU	max. Earth dist.	-4706 Jun 17 j 12:28	20° $\text{8}$ 58'43	36.35736 AU
conjunction	-4714 Jun 07 j 14:32	8° $\text{8}$ 04'02	5°02'19	conjunction	-4706 Jun 21 j 01:02	21° $\text{8}$ 05'25	8°33'30



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 13

Attention, astronomical year style is used: The year -4706 in astronomical counting style is the year 4707 BCE in historical counting style.

minimum elong	-4706 Jun 21 j 00:44	21° <del>8</del> 05'24	8°33'40	conjunction	-4698 Jul 06 j 05:40	5° <del>II</del> 55'27	11°58'05
retrograde	-4706 Sep 30 j 15:44	23° <del>8</del> 10'11		minimum elong	-4698 Jul 06 j 05:16	5° <del>II</del> 55'25	11°58'17
opposition	-4706 Dec 17 j 15:44	21° <del>8</del> 57'03	9°17'01	retrograde	-4698 Oct 16 j 06:35	8° <del>II</del> 11'00	
min. Earth dist.	-4706 Dec 20 j 20:29	21° <del>8</del> 52'21	34.25469 AU	opposition	-4697 Jan 01 j 13:54	6° <del>II</del> 54'39	12°54'41
direct	-4705 Mar 09 j 07:19	20° <del>8</del> 40'51		min. Earth dist.	-4697 Jan 04 j 16:55	6° <del>II</del> 49'49	32.32812 AU
max. Earth dist.	-4705 Jun 19 j 13:11	22° <del>8</del> 43'10	36.10311 AU	direct	-4697 Mar 23 j 19:02	5° <del>II</del> 34'51	
				max. Earth dist.	-4697 Jul 05 j 02:29	7° <del>II</del> 48'39	34.16345 AU
conjunction	-4705 Jun 23 j 01:55	22° <del>8</del> 49'58	8°59'51				
minimum elong	-4705 Jun 23 j 01:36	22° <del>8</del> 49'57	9°00'03	conjunction	-4697 Jul 08 j 12:50	7° <del>II</del> 55'48	12°22'06
retrograde	-4705 Oct 02 j 17:25	24° <del>8</del> 55'58		minimum elong	-4697 Jul 08 j 12:25	7° <del>II</del> 55'46	12°22'19
opposition	-4705 Dec 19 j 15:35	23° <del>8</del> 42'25	9°45'04	retrograde	-4697 Oct 18 j 13:13	10° <del>II</del> 12'46	
min. Earth dist.	-4705 Dec 22 j 19:33	23° <del>8</del> 37'44	34.00431 AU	opposition	-4696 Jan 03 j 20:37	8° <del>II</del> 55'59	13°20'12
direct	-4704 Mar 10 j 05:23	22° <del>8</del> 25'44		min. Earth dist.	-4696 Jan 07 j 00:13	8° <del>II</del> 51'05	32.09882 AU
max. Earth dist.	-4704 Jun 20 j 15:07	24° <del>8</del> 29'24	35.85144 AU	direct	-4696 Mar 24 j 22:45	7° <del>II</del> 35'43	
				max. Earth dist.	-4696 Jul 06 j 11:13	9° <del>II</del> 51'00	33.93274 AU
conjunction	-4704 Jun 24 j 03:41	24° <del>8</del> 36'15	9°26'05				
minimum elong	-4704 Jun 24 j 03:21	24° <del>8</del> 36'13	9°26'16	conjunction	-4696 Jul 09 j 20:36	9° <del>II</del> 58'09	12°45'34
retrograde	-4704 Oct 03 j 19:39	26° <del>8</del> 43'33		minimum elong	-4696 Jul 09 j 20:12	9° <del>II</del> 58'07	12°45'47
opposition	-4704 Dec 20 j 16:22	25° <del>8</del> 29'35	10°12'58	retrograde	-4696 Oct 19 j 22:11	12° <del>II</del> 16'31	
min. Earth dist.	-4704 Dec 23 j 21:04	25° <del>8</del> 24'49	33.75684 AU	opposition	-4695 Jan 05 j 04:01	10° <del>II</del> 59'17	13°45'07
direct	-4703 Mar 12 j 03:02	24° <del>8</del> 12'27		min. Earth dist.	-4695 Jan 08 j 06:05	10° <del>II</del> 54'27	31.87315 AU
max. Earth dist.	-4703 Jun 22 j 18:25	26° <del>8</del> 17'32	35.60289 AU	direct	-4695 Mar 27 j 06:18	9° <del>II</del> 38'32	
				max. Earth dist.	-4695 Jul 08 j 20:00	11° <del>II</del> 55'17	33.70593 AU
conjunction	-4703 Jun 26 j 06:07	26° <del>8</del> 24'23	9°52'07				
minimum elong	-4703 Jun 26 j 05:46	26° <del>8</del> 24'21	9°52'19	conjunction	-4695 Jul 12 j 05:10	12° <del>II</del> 02'29	13°08'25
retrograde	-4703 Oct 05 j 23:52	28° <del>8</del> 33'00		minimum elong	-4695 Jul 12 j 04:45	12° <del>II</del> 02'26	13°08'39
opposition	-4703 Dec 22 j 17:50	27° <del>8</del> 18'39	10°40'41	retrograde	-4695 Oct 22 j 08:19	14° <del>II</del> 22'15	
min. Earth dist.	-4703 Dec 25 j 21:17	27° <del>8</del> 13'56	33.51250 AU	opposition	-4694 Jan 07 j 12:28	13° <del>II</del> 04'33	14°09'22
direct	-4702 Mar 14 j 04:07	26° <del>8</del> 01'05		min. Earth dist.	-4694 Jan 10 j 14:44	12° <del>II</del> 59'41	31.65198 AU
max. Earth dist.	-4702 Jun 24 j 20:53	28° <del>8</del> 07'32	35.35714 AU	direct	-4694 Mar 29 j 12:09	11° <del>II</del> 43'19	
				max. Earth dist.	-4694 Jul 11 j 07:17	14° <del>II</del> 01'41	33.48412 AU
conjunction	-4702 Jun 28 j 09:07	28° <del>8</del> 14'28	10°17'56				
minimum elong	-4702 Jun 28 j 08:46	28° <del>8</del> 14'27	10°18'07	conjunction	-4694 Jul 14 j 14:17	14° <del>II</del> 08'45	13°30'34
	-4702 Aug 29 j 00:25	0° <del>II</del>		minimum elong	-4694 Jul 14 j 13:53	14° <del>II</del> 08'43	13°30'47
retrograde	-4702 Oct 08 j 05:46	0° <del>II</del> 24'28		retrograde	-4694 Oct 24 j 18:40	16° <del>II</del> 29'56	
	-4702 Nov 18 j 06:37	30° <del>R</del> 8		opposition	-4693 Jan 09 j 21:42	15° <del>II</del> 11'48	14°32'50
opposition	-4702 Dec 24 j 20:10	29° <del>8</del> 09'43	11°08'08	min. Earth dist.	-4693 Jan 12 j 22:01	15° <del>II</del> 07'01	31.43609 AU
min. Earth dist.	-4702 Dec 28 j 00:23	29° <del>8</del> 04'56	33.27099 AU	direct	-4693 Mar 31 j 21:21	13° <del>II</del> 50'05	
direct	-4701 Mar 16 j 05:03	27° <del>8</del> 51'43		max. Earth dist.	-4693 Jul 13 j 17:31	16° <del>II</del> 09'54	33.26803 AU
max. Earth dist.	-4701 Jun 27 j 02:16	29° <del>8</del> 59'42	35.11395 AU				
	-4701 Jun 27 j 05:49	0° <del>II</del>		conjunction	-4693 Jul 17 j 00:15	16° <del>II</del> 17'00	13°51'55
conjunction	-4701 Jun 30 j 13:08	0° <del>II</del> 06'37	10°43'29	minimum elong	-4693 Jul 16 j 23:50	16° <del>II</del> 16'58	13°52'09
minimum elong	-4701 Jun 30 j 12:46	0° <del>II</del> 06'35	10°43'41	retrograde	-4693 Oct 27 j 07:39	18° <del>II</del> 39'36	
retrograde	-4701 Oct 10 j 11:09	2° <del>II</del> 17'58		opposition	-4692 Jan 12 j 07:43	17° <del>II</del> 21'01	14°55'25
opposition	-4701 Dec 26 j 23:14	1° <del>II</del> 02'50	11°35'19	min. Earth dist.	-4692 Jan 15 j 07:26	17° <del>II</del> 16'16	31.22645 AU
min. Earth dist.	-4701 Dec 30 j 02:52	0° <del>II</del> 58'04	33.03184 AU	direct	-4692 Apr 02 j 06:14	15° <del>II</del> 58'52	
	-4700 Feb 13 j 01:22	30° <del>R</del> 8		max. Earth dist.	-4692 Jul 15 j 07:09	18° <del>II</del> 20'21	33.05856 AU
direct	-4700 Mar 17 j 09:07	29° <del>8</del> 44'25					
	-4700 Apr 19 j 03:07	0° <del>II</del>		conjunction	-4692 Jul 18 j 11:05	18° <del>II</del> 27'17	14°12'25
max. Earth dist.	-4700 Jun 28 j 06:07	1° <del>II</del> 53'46	34.87296 AU	minimum elong	-4692 Jul 18 j 10:42	18° <del>II</del> 27'15	14°12'38
				retrograde	-4692 Oct 28 j 19:55	20° <del>II</del> 51'16	
conjunction	-4700 Jul 01 j 17:53	2° <del>II</del> 00'49	11°08'43	opposition	-4691 Jan 13 j 18:53	19° <del>II</del> 32'17	15°17'03
minimum elong	-4700 Jul 01 j 17:30	2° <del>II</del> 00'48	11°08'55	min. Earth dist.	-4691 Jan 16 j 16:57	19° <del>II</del> 27'37	31.02353 AU
retrograde	-4700 Oct 11 j 17:45	4° <del>II</del> 13'35		direct	-4691 Apr 04 j 17:57	18° <del>II</del> 09'44	
opposition	-4700 Dec 28 j 03:16	2° <del>II</del> 58'03	12°02'11	max. Earth dist.	-4691 Jul 17 j 19:13	20° <del>II</del> 32'42	32.85624 AU
min. Earth dist.	-4700 Dec 31 j 07:06	2° <del>II</del> 53'14	32.79500 AU				
direct	-4699 Mar 19 j 11:20	1° <del>II</del> 39'11		conjunction	-4691 Jul 20 j 22:26	20° <del>II</del> 39'37	14°31'56
max. Earth dist.	-4699 Jun 30 j 12:46	3° <del>II</del> 50'04	34.63403 AU	minimum elong	-4691 Jul 20 j 22:02	20° <del>II</del> 39'35	14°32'11
				retrograde	-4691 Oct 31 j 09:44	23° <del>II</del> 05'01	
conjunction	-4699 Jul 03 j 23:26	3° <del>II</del> 57'07	11°33'37	opposition	-4690 Jan 16 j 06:49	21° <del>II</del> 45'40	15°37'38
minimum elong	-4699 Jul 03 j 23:02	3° <del>II</del> 57'05	11°33'49	min. Earth dist.	-4690 Jan 19 j 03:14	21° <del>II</del> 41'04	30.82790 AU
retrograde	-4699 Oct 13 j 22:26	6° <del>II</del> 11'16		direct	-4690 Apr 07 j 04:03	20° <del>II</del> 22'43	
opposition	-4699 Dec 30 j 08:18	4° <del>II</del> 55'20	12°28'39	max. Earth dist.	-4690 Jul 20 j 10:11	22° <del>II</del> 47'20	32.66116 AU
min. Earth dist.	-4698 Jan 02 j 12:10	4° <del>II</del> 50'28	32.56026 AU				
direct	-4698 Mar 21 j 15:37	3° <del>II</del> 36'01		conjunction	-4690 Jul 23 j 10:48	22° <del>II</del> 54'05	14°50'26
max. Earth dist.	-4698 Jul 02 j 18:44	5° <del>II</del> 48'18	34.39746 AU	minimum elong	-4690 Jul 23 j 10:26	22° <del>II</del> 54'03	14°50'40
				retrograde	-4690 Nov 02 j 22:24	25° <del>II</del> 20'53	



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 14

Attention, astronomical year style is used: The year -4689 in astronomical counting style is the year 4690 BCE in historical counting style.

opposition	-4689 Jan 18 j 19:40	24°II01'11	15°57'05	opposition	-4681 Feb 07 j 10:43	13°☾15'27	17°42'44
min. Earth dist.	-4689 Jan 21 j 15:07	23°II56'37	30.63929 AU	min. Earth dist.	-4681 Feb 09 j 15:17	13°☾11'48	29.38043 AU
direct	-4689 Apr 09 j 15:30	22°II37'53		direct	-4681 Apr 28 j 18:07	11°☾49'45	
max. Earth dist.	-4689 Jul 23 j 00:24	25°II03'59	32.47329 AU	max. Earth dist.	-4681 Aug 12 j 04:21	14°☾26'41	31.22879 AU
conjunction	-4689 Jul 25 j 23:50	25°II10'42	15°07'50	conjunction	-4681 Aug 14 j 09:21	14°☾31'57	16°38'42
minimum elong	-4689 Jul 25 j 23:28	25°II10'39	15°08'05	minimum elong	-4681 Aug 14 j 09:12	14°☾31'56	16°38'57
retrograde	-4689 Nov 05 j 14:42	27°II38'52		retrograde	-4681 Nov 25 j 12:13	17°☾09'25	
opposition	-4688 Jan 21 j 09:27	26°II18'50	16°15'20	opposition	-4680 Feb 10 j 07:04	15°☾46'52	17°48'25
min. Earth dist.	-4688 Jan 24 j 02:41	26°II14'24	30.45762 AU	min. Earth dist.	-4680 Feb 12 j 09:12	15°☾43'22	29.25970 AU
direct	-4688 Apr 11 j 03:29	24°II55'12		direct	-4680 Apr 30 j 14:42	14°☾20'59	
max. Earth dist.	-4688 Jul 24 j 16:21	27°II22'51	32.29217 AU	max. Earth dist.	-4680 Aug 14 j 00:55	16°☾58'54	31.11253 AU
conjunction	-4688 Jul 27 j 13:45	27°II29'25	15°24'03	conjunction	-4680 Aug 16 j 03:42	17°☾03'59	16°42'52
minimum elong	-4688 Jul 27 j 13:24	27°II29'23	15°24'17	minimum elong	-4680 Aug 16 j 03:35	17°☾03'58	16°43'05
retrograde	-4688 Nov 07 j 04:40	29°II58'57		retrograde	-4680 Nov 27 j 09:47	19°☾42'18	
opposition	-4687 Jan 23 j 00:22	28°II38'35	16°32'18	opposition	-4679 Feb 12 j 03:55	18°☾19'31	17°52'09
min. Earth dist.	-4687 Jan 25 j 17:06	28°II34'10	30.28255 AU	min. Earth dist.	-4679 Feb 14 j 02:25	18°☾16'16	29.14953 AU
direct	-4687 Apr 13 j 15:16	27°II14'38		direct	-4679 May 03 j 10:46	16°☾53'28	
max. Earth dist.	-4687 Jul 27 j 08:58	29°II43'45	32.11795 AU	max. Earth dist.	-4679 Aug 16 j 23:57	19°☾32'30	31.00731 AU
conjunction	-4687 Jul 30 j 04:21	29°II50'12	15°39'02	conjunction	-4679 Aug 18 j 22:42	19°☾37'12	16°45'11
minimum elong	-4687 Jul 30 j 04:01	29°II50'10	15°39'17	minimum elong	-4679 Aug 18 j 22:38	19°☾37'12	16°45'25
retrograde	-4687 Aug 03 j 11:01	0°☾		retrograde	-4679 Nov 30 j 05:07	22°☾16'18	
opposition	-4687 Nov 09 j 20:52	2°☾21'02		opposition	-4678 Feb 15 j 01:25	20°☾53'21	17°53'52
min. Earth dist.	-4686 Jan 25 j 16:04	1°☾00'21	16°47'55	min. Earth dist.	-4678 Feb 16 j 21:40	20°☾50'14	29.05025 AU
direct	-4686 Jan 28 j 06:13	0°☾56'06	30.11412 AU	direct	-4678 May 06 j 06:40	19°☾27'12	
max. Earth dist.	-4686 Apr 16 j 06:19	29°II36'04		max. Earth dist.	-4678 Aug 19 j 21:54	22°☾07'06	30.91355 AU
conjunction	-4686 Aug 01 j 19:40	2°☾12'56	15°52'43	conjunction	-4678 Aug 21 j 17:50	22°☾11'33	16°45'36
minimum elong	-4686 Aug 01 j 19:22	2°☾12'55	15°52'57	minimum elong	-4678 Aug 21 j 17:47	22°☾11'32	16°45'49
retrograde	-4686 Nov 12 j 13:34	4°☾45'03		retrograde	-4678 Dec 03 j 03:25	24°☾51'21	
opposition	-4685 Jan 28 j 08:44	3°☾24'02	17°02'05	opposition	-4677 Feb 17 j 23:14	23°☾28'15	17°53'32
min. Earth dist.	-4685 Jan 30 j 22:12	3°☾19'49	29.95236 AU	min. Earth dist.	-4677 Feb 19 j 15:27	23°☾25'26	28.96196 AU
direct	-4685 Apr 18 j 19:37	1°☾59'26		direct	-4677 May 09 j 03:40	22°☾02'02	
max. Earth dist.	-4685 Aug 01 j 20:25	4°☾31'23	31.78999 AU	max. Earth dist.	-4677 Aug 22 j 21:11	24°☾42'51	30.83090 AU
conjunction	-4685 Aug 04 j 11:45	4°☾37'32	16°05'00	conjunction	-4677 Aug 24 j 13:26	24°☾46'56	16°44'06
minimum elong	-4685 Aug 04 j 11:28	4°☾37'31	16°05'15	minimum elong	-4677 Aug 24 j 13:27	24°☾46'56	16°44'20
retrograde	-4685 Nov 15 j 07:03	7°☾10'51		retrograde	-4677 Dec 06 j 00:10	27°☾27'22	
opposition	-4684 Jan 31 j 02:02	5°☾49'30	17°14'45	opposition	-4676 Feb 20 j 21:40	26°☾04'09	17°51'07
min. Earth dist.	-4684 Feb 02 j 12:53	5°☾45'27	29.79746 AU	min. Earth dist.	-4676 Feb 22 j 11:56	26°☾01'27	28.88441 AU
direct	-4684 Apr 20 j 12:42	4°☾24'37		direct	-4676 May 10 j 23:20	24°☾37'54	
max. Earth dist.	-4684 Aug 03 j 14:19	6°☾57'48	31.63688 AU	max. Earth dist.	-4676 Aug 24 j 20:19	27°☾19'27	30.75934 AU
conjunction	-4684 Aug 06 j 04:25	7°☾03'52	16°15'50	conjunction	-4676 Aug 26 j 09:14	27°☾23'12	16°40'40
minimum elong	-4684 Aug 06 j 04:09	7°☾03'50	16°16'03	minimum elong	-4676 Aug 26 j 09:16	27°☾23'13	16°40'53
retrograde	-4684 Nov 17 j 02:07	9°☾38'20		retrograde	-4676 Nov 22 j 16:53	0°♂	
opposition	-4683 Feb 01 j 20:19	8°☾16'39	17°25'48	opposition	-4676 Dec 07 j 21:14	0°♂04'10	
min. Earth dist.	-4683 Feb 04 j 05:46	8°☾12'41	29.65011 AU	retrograde	-4676 Dec 23 j 05:47	30°♂☾	
direct	-4683 Apr 23 j 05:12	6°☾51'29		opposition	-4675 Feb 22 j 20:28	28°☾40'52	17°46'36
max. Earth dist.	-4683 Aug 06 j 10:59	9°☾26'02	31.49183 AU	min. Earth dist.	-4675 Feb 24 j 06:33	28°☾38'28	28.81736 AU
conjunction	-4683 Aug 08 j 21:33	9°☾31'48	16°25'06	direct	-4675 May 13 j 22:06	27°☾14'37	
minimum elong	-4683 Aug 08 j 21:19	9°☾31'46	16°25'21	max. Earth dist.	-4675 Aug 27 j 19:18	29°☾56'46	30.69833 AU
retrograde	-4683 Nov 19 j 20:25	12°☾07'20		conjunction	-4675 Aug 29 j 05:08	0°♂00'13	16°35'19
opposition	-4682 Feb 04 j 15:18	10°☾45'21	17°35'10	minimum elong	-4675 Aug 29 j 05:15	0°♂00'14	16°35'32
min. Earth dist.	-4682 Feb 06 j 22:15	10°☾41'32	29.51076 AU	retrograde	-4675 Aug 29 j 03:01	0°♂	
direct	-4682 Apr 26 j 00:33	9°☾19'54		retrograde	-4675 Dec 10 j 18:24	2°♂41'36	
max. Earth dist.	-4682 Aug 09 j 06:12	11°☾55'34	31.35552 AU	opposition	-4674 Feb 25 j 19:43	1°♂18'13	17°40'00
conjunction	-4682 Aug 11 j 15:08	12°☾01'12	16°32'46	min. Earth dist.	-4674 Feb 27 j 03:42	1°♂15'58	28.76052 AU
minimum elong	-4682 Aug 11 j 14:57	12°☾01'11	16°32'59	direct	-4674 Apr 24 j 19:16	30°♂☾	
retrograde	-4682 Nov 22 j 16:36	14°☾37'44		max. Earth dist.	-4674 May 16 j 18:24	29°☾52'00	
				conjunction	-4674 Jun 07 j 09:46	0°♂	
				max. Earth dist.	-4674 Aug 30 j 19:12	2°♂34'40	30.64781 AU
				conjunction	-4674 Sep 01 j 01:21	2°♂37'45	16°28'01



# Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 15

Attention, astronomical year style is used: The year -4674 in astronomical counting style is the year 4675 BCE in historical counting style.

minimum elong	-4674 Sep 01 j 01:28	2° $\Omega$ 37'46	16°28'13	max. Earth dist.	-4666 Sep 21 j 12:11	23° $\Omega$ 30'36	30.62777 AU
retrograde	-4674 Dec 13 j 15:49	5° $\Omega$ 19'25		retrograde	-4665 Jan 03 j 12:24	26° $\Omega$ 10'51	
opposition	-4673 Feb 28 j 18:57	3° $\Omega$ 55'59	17°31'20	opposition	-4665 Mar 22 j 13:11	24° $\Omega$ 47'24	15°09'55
min. Earth dist.	-4673 Mar 01 j 23:05	3° $\Omega$ 54'00	28.71353 AU	min. Earth dist.	-4665 Mar 22 j 14:02	24° $\Omega$ 47'20	28.71662 AU
direct	-4673 May 19 j 17:07	2° $\Omega$ 29'48		direct	-4665 Jun 10 j 09:35	23° $\Omega$ 22'15	
conjunction	-4673 Sep 03 j 21:35	5° $\Omega$ 15'35	16°18'49	conjunction	-4665 Sep 24 j 07:33	26° $\Omega$ 04'02	13°59'11
minimum elong	-4673 Sep 03 j 21:46	5° $\Omega$ 15'36	16°19'01	minimum elong	-4665 Sep 24 j 07:58	26° $\Omega$ 04'04	13°59'20
max. Earth dist.	-4673 Sep 02 j 17:58	5° $\Omega$ 12'46	30.60738 AU	max. Earth dist.	-4665 Sep 24 j 09:31	26° $\Omega$ 04'14	30.67832 AU
retrograde	-4673 Dec 16 j 12:54	7° $\Omega$ 57'27		retrograde	-4664 Jan 06 j 07:56	28° $\Omega$ 43'33	
opposition	-4672 Mar 02 j 18:37	6° $\Omega$ 33'57	17°20'35	opposition	-4664 Mar 24 j 11:13	27° $\Omega$ 20'17	14°43'57
min. Earth dist.	-4672 Mar 03 j 20:15	6° $\Omega$ 32'08	28.67646 AU	min. Earth dist.	-4664 Mar 24 j 07:13	27° $\Omega$ 20'33	28.76934 AU
direct	-4672 May 21 j 15:14	5° $\Omega$ 07'48		direct	-4664 Jun 12 j 08:09	25° $\Omega$ 55'26	
conjunction	-4672 Sep 05 j 17:45	7° $\Omega$ 53'30	16°07'42	conjunction	-4664 Sep 26 j 01:01	28° $\Omega$ 36'19	13°34'13
minimum elong	-4672 Sep 05 j 17:57	7° $\Omega$ 53'31	16°07'54	minimum elong	-4664 Sep 26 j 01:24	28° $\Omega$ 36'21	13°34'22
max. Earth dist.	-4672 Sep 04 j 18:22	7° $\Omega$ 51'06	30.57720 AU	max. Earth dist.	-4664 Sep 26 j 06:53	28° $\Omega$ 36'54	30.74052 AU
retrograde	-4672 Dec 18 j 09:22	10° $\Omega$ 35'25			-4664 Nov 01 j 13:42	0° $\mp$	
opposition	-4671 Mar 05 j 18:22	9° $\Omega$ 11'51	17°07'48	retrograde	-4663 Jan 08 j 01:57	1° $\mp$ 15'11	
min. Earth dist.	-4671 Mar 06 j 16:28	9° $\Omega$ 10'18	28.64920 AU		-4663 Mar 22 j 14:07	30° $\mathbb{R}$ $\Omega$	
direct	-4671 May 24 j 15:15	7° $\Omega$ 45'47		opposition	-4663 Mar 27 j 09:01	29° $\Omega$ 52'06	14°16'24
conjunction	-4671 Sep 08 j 13:47	10° $\Omega$ 31'14	15°54'43	min. Earth dist.	-4663 Mar 27 j 02:22	29° $\Omega$ 52'33	28.83345 AU
minimum elong	-4671 Sep 08 j 14:02	10° $\Omega$ 31'15	15°54'55	direct	-4663 Jun 15 j 04:47	28° $\Omega$ 27'35	
max. Earth dist.	-4671 Sep 07 j 16:50	10° $\Omega$ 29'05	30.55730 AU		-4663 Aug 30 j 17:24	0° $\mp$	
retrograde	-4671 Dec 21 j 07:17	13° $\Omega$ 13'06		conjunction	-4663 Sep 28 j 18:06	1° $\mp$ 07'29	13°07'51
opposition	-4670 Mar 08 j 17:56	11° $\Omega$ 49'29	16°53'00	minimum elong	-4663 Sep 28 j 18:32	1° $\mp$ 07'32	13°07'58
min. Earth dist.	-4670 Mar 09 j 12:46	11° $\Omega$ 48'10	28.63225 AU	max. Earth dist.	-4663 Sep 29 j 03:36	1° $\mp$ 08'26	30.81397 AU
direct	-4670 May 27 j 13:00	10° $\Omega$ 23'29		retrograde	-4662 Jan 10 j 20:22	3° $\mp$ 45'38	
conjunction	-4670 Sep 11 j 09:41	13° $\Omega$ 08'34	15°39'52	opposition	-4662 Mar 30 j 06:01	2° $\mp$ 22'45	13°47'24
minimum elong	-4670 Sep 11 j 09:57	13° $\Omega$ 08'36	15°40'03	min. Earth dist.	-4662 Mar 29 j 19:11	2° $\mp$ 23'30	28.90825 AU
max. Earth dist.	-4670 Sep 10 j 17:14	13° $\Omega$ 06'53	30.54810 AU	direct	-4662 Jun 18 j 02:23	0° $\mp$ 58'35	
retrograde	-4670 Oct 31 j 10:45	15° $\Omega$		conjunction	-4662 Oct 01 j 10:38	3° $\mp$ 37'27	12°40'11
opposition	-4670 Dec 24 j 03:14	15° $\Omega$ 50'16		minimum elong	-4662 Oct 01 j 11:03	3° $\mp$ 37'30	12°40'19
min. Earth dist.	-4669 Feb 19 j 07:19	15° $\mathbb{R}$ $\Omega$		max. Earth dist.	-4662 Oct 01 j 23:06	3° $\mp$ 38'42	30.89774 AU
direct	-4669 Mar 11 j 17:30	14° $\Omega$ 26'38	16°36'12	retrograde	-4661 Jan 13 j 12:52	6° $\mp$ 14'49	
conjunction	-4669 Mar 12 j 09:07	14° $\Omega$ 25'32	28.62575 AU	opposition	-4661 Apr 02 j 02:43	4° $\mp$ 52'10	13°17'04
minimum elong	-4669 Mar 12 j 09:07	14° $\Omega$ 25'32	28.62575 AU	min. Earth dist.	-4661 Apr 01 j 13:11	4° $\mp$ 53'05	28.99319 AU
max. Earth dist.	-4669 May 30 j 13:41	13° $\Omega$ 00'43		direct	-4661 Jun 20 j 21:42	3° $\mp$ 28'21	
retrograde	-4669 Aug 26 j 11:09	15° $\Omega$		conjunction	-4661 Oct 04 j 02:39	6° $\mp$ 06'06	12°11'20
opposition	-4669 Sep 14 j 05:05	15° $\Omega$ 45'19	15°23'12	minimum elong	-4661 Oct 04 j 03:05	6° $\mp$ 06'09	12°11'27
min. Earth dist.	-4669 Sep 14 j 05:25	15° $\Omega$ 45'21	15°23'22	max. Earth dist.	-4661 Oct 04 j 19:01	6° $\mp$ 07'43	30.99137 AU
direct	-4669 Sep 13 j 15:16	15° $\Omega$ 43'54	30.54999 AU	retrograde	-4660 Jan 16 j 04:04	8° $\mp$ 42'36	
conjunction	-4669 Dec 27 j 00:59	18° $\Omega$ 26'44		opposition	-4660 Apr 03 j 22:48	7° $\mp$ 20'11	12°45'30
minimum elong	-4668 Mar 13 j 16:47	17° $\Omega$ 03'05	16°17'26	min. Earth dist.	-4660 Apr 03 j 05:46	7° $\mp$ 21'20	29.08751 AU
max. Earth dist.	-4668 Mar 14 j 04:14	17° $\Omega$ 02'17	28.63053 AU	direct	-4660 Jun 22 j 18:26	5° $\mp$ 56'43	
direct	-4668 Jun 01 j 13:01	15° $\Omega$ 37'18		conjunction	-4660 Oct 05 j 18:02	8° $\mp$ 33'18	11°41'25
conjunction	-4668 Sep 16 j 00:22	18° $\Omega$ 21'19	15°04'44	minimum elong	-4660 Oct 05 j 18:27	8° $\mp$ 33'20	11°41'31
minimum elong	-4668 Sep 16 j 00:42	18° $\Omega$ 21'21	15°04'54	max. Earth dist.	-4660 Oct 06 j 12:37	8° $\mp$ 35'08	31.09420 AU
max. Earth dist.	-4668 Sep 15 j 15:22	18° $\Omega$ 20'24	30.56361 AU	retrograde	-4659 Jan 17 j 20:44	11° $\mp$ 08'53	
retrograde	-4668 Dec 28 j 19:57	21° $\Omega$ 02'23		opposition	-4659 Apr 06 j 18:18	9° $\mp$ 46'40	12°12'51
opposition	-4667 Mar 16 j 16:02	19° $\Omega$ 38'46	15°56'45	min. Earth dist.	-4659 Apr 05 j 22:02	9° $\mp$ 48'02	29.19104 AU
min. Earth dist.	-4667 Mar 17 j 00:27	19° $\Omega$ 38'10	28.64705 AU	direct	-4659 Jun 25 j 11:46	8° $\mp$ 23'34	
direct	-4667 Jun 04 j 11:51	18° $\Omega$ 13'08		conjunction	-4659 Oct 08 j 08:53	10° $\mp$ 58'54	11°10'30
conjunction	-4667 Sep 18 j 19:02	20° $\Omega$ 56'29	14°44'32	minimum elong	-4659 Oct 08 j 09:18	10° $\mp$ 58'56	11°10'35
minimum elong	-4667 Sep 18 j 19:25	20° $\Omega$ 56'31	14°44'41	max. Earth dist.	-4659 Oct 09 j 07:25	11° $\mp$ 01'06	31.20595 AU
max. Earth dist.	-4667 Sep 18 j 13:08	20° $\Omega$ 55'53	30.58953 AU	retrograde	-4658 Jan 20 j 10:28	13° $\mp$ 33'29	
retrograde	-4667 Dec 31 j 17:24	23° $\Omega$ 37'06		opposition	-4658 Apr 09 j 13:03	12° $\mp$ 11'30	11°39'11
opposition	-4666 Mar 19 j 14:47	22° $\Omega$ 13'33	15°34'14	min. Earth dist.	-4658 Apr 08 j 14:09	12° $\mp$ 13'03	29.30319 AU
min. Earth dist.	-4666 Mar 19 j 18:24	22° $\Omega$ 13'18	28.67578 AU	direct	-4658 Jun 28 j 07:47	10° $\mp$ 48'45	
direct	-4666 Jun 07 j 11:20	20° $\Omega$ 48'08		conjunction	-4658 Oct 10 j 22:54	13° $\mp$ 22'46	10°38'43
conjunction	-4666 Sep 21 j 13:34	23° $\Omega$ 30'44	14°22'39	minimum elong	-4658 Oct 10 j 23:18	13° $\mp$ 22'49	10°38'48
minimum elong	-4666 Sep 21 j 13:56	23° $\Omega$ 30'46	14°22'48				



# Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 16

Attention, astronomical year style is used: The year -4658 in astronomical counting style is the year 4659 BCE in historical counting style.

max. Earth dist.	-4658 Oct 11 j 23:15	13° $\mathring{M}$ 25'09	31.32628 AU	max. Earth dist.	-4650 Oct 30 j 13:41	1° $\mathring{A}$ 30'57	32.61125 AU
retrograde	-4657 Jan 23 j 01:59	15° $\mathring{M}$ 56'19		retrograde	-4649 Feb 09 j 16:38	3° $\mathring{A}$ 50'51	
min. Earth dist.	-4657 Apr 11 j 04:22	14° $\mathring{M}$ 36'19	29.42414 AU	min. Earth dist.	-4649 Apr 29 j 01:55	2° $\mathring{A}$ 34'34	30.71864 AU
opposition	-4657 Apr 12 j 06:55	14° $\mathring{M}$ 34'33	11°04'39	opposition	-4649 May 01 j 03:14	2° $\mathring{A}$ 31'24	6°08'09
direct	-4657 Jul 01 j 01:16	13° $\mathring{M}$ 12'08		direct	-4649 Jul 20 j 02:15	1° $\mathring{A}$ 12'17	
conjunction	-4657 Oct 13 j 12:19	15° $\mathring{M}$ 44'49	10°06'08	conjunction	-4649 Oct 30 j 20:39	3° $\mathring{A}$ 33'53	5°27'57
minimum elong	-4657 Oct 13 j 12:43	15° $\mathring{M}$ 44'52	10°06'12	minimum elong	-4649 Oct 30 j 20:53	3° $\mathring{A}$ 33'55	5°27'56
max. Earth dist.	-4657 Oct 14 j 16:46	15° $\mathring{M}$ 47'34	31.45534 AU	max. Earth dist.	-4649 Nov 01 j 22:28	3° $\mathring{A}$ 38'25	32.80745 AU
retrograde	-4656 Jan 25 j 14:19	18° $\mathring{M}$ 17'16		retrograde	-4648 Feb 12 j 01:25	5° $\mathring{A}$ 57'05	
min. Earth dist.	-4656 Apr 12 j 19:34	16° $\mathring{M}$ 57'38	29.55400 AU	min. Earth dist.	-4648 Apr 30 j 10:11	4° $\mathring{A}$ 41'19	30.91563 AU
opposition	-4656 Apr 14 j 00:18	16° $\mathring{M}$ 55'43	10°29'18	opposition	-4648 May 02 j 14:25	4° $\mathring{A}$ 37'59	5°30'03
direct	-4656 Jul 02 j 18:26	15° $\mathring{M}$ 33'39		direct	-4648 Jul 21 j 11:44	3° $\mathring{A}$ 19'19	
conjunction	-4656 Oct 15 j 00:43	18° $\mathring{M}$ 04'57	9°32'51	conjunction	-4648 Nov 01 j 03:43	5° $\mathring{A}$ 39'33	4°52'19
minimum elong	-4656 Oct 15 j 01:06	18° $\mathring{M}$ 04'59	9°32'55	minimum elong	-4648 Nov 01 j 03:55	5° $\mathring{A}$ 39'34	4°52'19
max. Earth dist.	-4656 Oct 16 j 07:27	18° $\mathring{M}$ 07'54	31.59344 AU	max. Earth dist.	-4648 Nov 03 j 08:38	5° $\mathring{A}$ 44'19	33.00911 AU
retrograde	-4655 Jan 27 j 04:36	20° $\mathring{M}$ 36'16		retrograde	-4647 Feb 13 j 07:41	8° $\mathring{A}$ 01'35	
min. Earth dist.	-4655 Apr 15 j 07:46	19° $\mathring{M}$ 17'08	29.69323 AU	min. Earth dist.	-4647 May 02 j 19:41	6° $\mathring{A}$ 46'12	31.11784 AU
opposition	-4655 Apr 16 j 16:46	19° $\mathring{M}$ 14'57	9°53'17	opposition	-4647 May 05 j 00:54	6° $\mathring{A}$ 42'49	4°52'01
direct	-4655 Jul 05 j 11:45	17° $\mathring{M}$ 53'14		direct	-4647 Jul 23 j 21:49	5° $\mathring{A}$ 24'36	
conjunction	-4655 Oct 17 j 12:36	20° $\mathring{M}$ 23'10	8°58'58	conjunction	-4647 Nov 03 j 10:10	7° $\mathring{A}$ 43'28	4°16'45
minimum elong	-4655 Oct 17 j 12:59	20° $\mathring{M}$ 23'12	8°59'01	minimum elong	-4647 Nov 03 j 10:21	7° $\mathring{A}$ 43'29	4°16'44
max. Earth dist.	-4655 Oct 18 j 23:10	20° $\mathring{M}$ 26'27	31.74078 AU	max. Earth dist.	-4647 Nov 05 j 15:59	7° $\mathring{A}$ 48'16	33.21552 AU
retrograde	-4654 Jan 29 j 16:57	22° $\mathring{M}$ 53'19		retrograde	-4646 Feb 15 j 15:41	10° $\mathring{A}$ 04'19	
min. Earth dist.	-4654 Apr 17 j 21:17	21° $\mathring{M}$ 34'34	29.84201 AU	min. Earth dist.	-4646 May 05 j 02:10	8° $\mathring{A}$ 49'26	31.32476 AU
opposition	-4654 Apr 19 j 08:25	21° $\mathring{M}$ 32'15	9°16'39	opposition	-4646 May 07 j 10:18	8° $\mathring{A}$ 45'54	4°14'07
direct	-4654 Jul 08 j 04:32	20° $\mathring{M}$ 10'56		direct	-4646 Jul 26 j 07:29	7° $\mathring{A}$ 28'04	
conjunction	-4654 Oct 19 j 23:43	22° $\mathring{M}$ 39'27	8°24'34	conjunction	-4646 Nov 05 j 15:56	9° $\mathring{A}$ 45'36	3°41'19
minimum elong	-4654 Oct 20 j 00:04	22° $\mathring{M}$ 39'29	8°24'37	minimum elong	-4646 Nov 05 j 16:05	9° $\mathring{A}$ 45'37	3°41'19
max. Earth dist.	-4654 Oct 21 j 12:51	22° $\mathring{M}$ 42'58	31.89766 AU	max. Earth dist.	-4646 Nov 08 j 00:09	9° $\mathring{A}$ 50'35	33.42607 AU
retrograde	-4653 Feb 01 j 05:10	25° $\mathring{M}$ 08'27		retrograde	-4645 Feb 17 j 22:07	12° $\mathring{A}$ 05'16	
min. Earth dist.	-4653 Apr 20 j 08:01	23° $\mathring{M}$ 50'15	30.00028 AU	min. Earth dist.	-4645 May 07 j 10:18	10° $\mathring{A}$ 50'44	31.53599 AU
opposition	-4653 Apr 21 j 23:14	23° $\mathring{M}$ 47'40	8°39'32	opposition	-4645 May 09 j 19:14	10° $\mathring{A}$ 47'10	3°36'26
direct	-4653 Jul 10 j 20:43	22° $\mathring{M}$ 26'45		direct	-4645 Jul 28 j 16:54	9° $\mathring{A}$ 29'45	
conjunction	-4653 Oct 22 j 09:59	24° $\mathring{M}$ 53'53	7°49'44	conjunction	-4645 Nov 07 j 20:52	11° $\mathring{A}$ 45'56	3°06'05
minimum elong	-4653 Oct 22 j 10:19	24° $\mathring{M}$ 53'55	7°49'45	minimum elong	-4645 Nov 07 j 20:59	11° $\mathring{A}$ 45'57	3°06'03
max. Earth dist.	-4653 Oct 24 j 02:10	24° $\mathring{M}$ 57'39	32.06365 AU	max. Earth dist.	-4645 Nov 10 j 06:31	11° $\mathring{A}$ 50'59	33.64079 AU
retrograde	-4652 Feb 03 j 15:00	27° $\mathring{M}$ 21'44		retrograde	-4644 Feb 20 j 03:44	14° $\mathring{A}$ 04'25	
min. Earth dist.	-4652 Apr 21 j 19:59	26° $\mathring{M}$ 03'58	30.16782 AU	min. Earth dist.	-4644 May 08 j 15:42	12° $\mathring{A}$ 50'20	31.75150 AU
opposition	-4652 Apr 23 j 13:31	26° $\mathring{M}$ 01'15	8°02'01	opposition	-4644 May 11 j 03:16	12° $\mathring{A}$ 46'37	2°58'59
direct	-4652 Jul 12 j 10:35	24° $\mathring{M}$ 40'46		direct	-4644 Jul 30 j 02:23	11° $\mathring{A}$ 29'35	
conjunction	-4652 Oct 23 j 19:44	27° $\mathring{M}$ 06'31	7°14'33	conjunction	-4644 Nov 09 j 01:07	13° $\mathring{A}$ 44'26	2°31'05
minimum elong	-4652 Oct 23 j 20:02	27° $\mathring{M}$ 06'33	7°14'36	minimum elong	-4644 Nov 09 j 01:13	13° $\mathring{A}$ 44'27	2°31'03
max. Earth dist.	-4652 Oct 25 j 15:04	27° $\mathring{M}$ 10'33	32.23852 AU	max. Earth dist.	-4644 Nov 11 j 12:29	13° $\mathring{A}$ 49'36	33.85961 AU
retrograde	-4651 Feb 05 j 00:18	29° $\mathring{M}$ 33'11		retrograde	-4643 Feb 21 j 07:14	16° $\mathring{A}$ 01'45	
min. Earth dist.	-4651 Apr 24 j 06:05	28° $\mathring{M}$ 15'57	30.34391 AU	min. Earth dist.	-4643 May 10 j 21:40	14° $\mathring{A}$ 48'02	31.97175 AU
opposition	-4651 Apr 26 j 02:49	28° $\mathring{M}$ 13'03	7°24'13	opposition	-4643 May 13 j 10:32	14° $\mathring{A}$ 44'15	2°21'52
direct	-4651 Jul 15 j 01:47	26° $\mathring{M}$ 53'01		direct	-4643 Aug 01 j 09:55	13° $\mathring{A}$ 27'37	
conjunction	-4651 Oct 26 j 04:37	29° $\mathring{M}$ 17'23	6°39'09	conjunction	-4643 Nov 11 j 04:45	15° $\mathring{A}$ 41'09	1°56'22
minimum elong	-4651 Oct 26 j 04:54	29° $\mathring{M}$ 17'24	6°39'10	minimum elong	-4643 Nov 11 j 04:50	15° $\mathring{A}$ 41'09	1°56'19
max. Earth dist.	-4651 Oct 28 j 02:01	29° $\mathring{M}$ 21'34	32.42130 AU	max. Earth dist.	-4643 Nov 13 j 18:32	15° $\mathring{A}$ 46'29	34.08308 AU
retrograde	-4651 Nov 14 j 17:53	0° $\mathring{A}$		retrograde	-4642 Feb 23 j 08:43	17° $\mathring{A}$ 57'17	
min. Earth dist.	-4650 Feb 07 j 10:07	1° $\mathring{A}$ 42'53		min. Earth dist.	-4642 May 13 j 02:07	16° $\mathring{A}$ 44'00	32.19677 AU
opposition	-4650 Apr 26 j 16:06	0° $\mathring{A}$ 26'09	30.52788 AU	opposition	-4642 May 15 j 16:56	16° $\mathring{A}$ 40'06	1°45'06
direct	-4650 Apr 28 j 15:28	0° $\mathring{A}$ 23'05	6°46'14	direct	-4642 Aug 03 j 18:58	15° $\mathring{A}$ 23'52	
conjunction	-4650 May 13 j 17:29	30° $\mathring{R}$		conjunction	-4642 Nov 13 j 07:35	17° $\mathring{A}$ 36'07	1°22'00
minimum elong	-4650 Jul 17 j 13:19	29° $\mathring{M}$ 03'31		minimum elong	-4642 Nov 13 j 07:38	17° $\mathring{A}$ 36'07	1°21'56
max. Earth dist.	-4650 Sep 16 j 04:48	0° $\mathring{A}$		max. Earth dist.	-4642 Nov 15 j 22:22	17° $\mathring{A}$ 41'29	34.31121 AU
retrograde	-4650 Oct 28 j 13:01	1° $\mathring{A}$ 26'30	6°03'35	retrograde	-4641 Feb 25 j 12:07	19° $\mathring{A}$ 51'08	
minimum elong	-4650 Oct 28 j 13:16	1° $\mathring{A}$ 26'31	6°03'36	min. Earth dist.	-4641 May 15 j 05:29	18° $\mathring{A}$ 38'17	32.42693 AU



# Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 17

Attention, astronomical year style is used: The year -4641 in astronomical counting style is the year 4642 BCE in historical counting style.

opposition	-4641 May 17 j 22:38	18° <u>♂</u> 34'16	1°08'44	conjunction	-4634 Nov 27 j 10:40	2° <u>♂</u> 01'50	-2°-56'-59
direct	-4641 Aug 06 j 00:03	17° <u>♂</u> 18'26		minimum elong	-4634 Nov 27 j 10:33	2° <u>♂</u> 01'49	2°57'07
				max. Earth dist.	-4634 Nov 30 j 12:31	2° <u>♂</u> 07'46	36.26370 AU
conjunction	-4641 Nov 15 j 09:57	19° <u>♂</u> 29'26	0°47'59	retrograde	-4633 Mar 11 j 13:51	4° <u>♂</u> 08'35	
minimum elong	-4641 Nov 15 j 09:59	19° <u>♂</u> 29'26	0°47'55	min. Earth dist.	-4633 May 29 j 19:10	2° <u>♂</u> 58'46	34.39163 AU
max. Earth dist.	-4641 Nov 18 j 03:33	19° <u>♂</u> 35'00	34.54424 AU	opposition	-4633 Jun 01 j 20:56	2° <u>♂</u> 54'26	-3°-23'-28
retrograde	-4640 Feb 27 j 12:27	21° <u>♂</u> 43'22		direct	-4633 Aug 21 j 00:46	1° <u>♂</u> 41'45	
min. Earth dist.	-4640 May 16 j 09:30	20° <u>♂</u> 30'53	32.66194 AU				
opposition	-4640 May 19 j 03:42	20° <u>♂</u> 26'50	0°32'49	conjunction	-4633 Nov 29 j 08:41	3° <u>♂</u> 43'41	-3°-26'-59
direct	-4640 Aug 07 j 06:02	19° <u>♂</u> 11'25		minimum elong	-4633 Nov 29 j 08:33	3° <u>♂</u> 43'40	3°27'06
				max. Earth dist.	-4633 Dec 02 j 10:06	3° <u>♂</u> 49'32	36.51384 AU
conjunction	-4640 Nov 16 j 11:33	21° <u>♂</u> 21'11	0°14'24	retrograde	-4632 Mar 12 j 12:19	5° <u>♂</u> 49'27	
minimum elong	-4640 Nov 16 j 11:33	21° <u>♂</u> 21'11	0°14'20	min. Earth dist.	-4632 May 30 j 17:34	4° <u>♂</u> 39'59	34.64300 AU
behind sun begin	-4640 Nov 16 j 08:27	21° <u>♂</u> 20'56		opposition	-4632 Jun 02 j 20:57	4° <u>♂</u> 35'34	-3°-54'-49
behind sun end	-4640 Nov 16 j 14:40	21° <u>♂</u> 21'26		direct	-4632 Aug 22 j 00:05	3° <u>♂</u> 23'12	
max. Earth dist.	-4640 Nov 19 j 05:48	21° <u>♂</u> 26'46	34.78181 AU				
retrograde	-4639 Feb 28 j 15:37	23° <u>♂</u> 34'03		conjunction	-4632 Nov 30 j 06:10	5° <u>♂</u> 24'04	-3°-56'-23
desc. node	-4639 Apr 23 j 23:31	22° <u>♂</u> 56'00		minimum elong	-4632 Nov 30 j 06:02	5° <u>♂</u> 24'04	3°56'32
min. Earth dist.	-4639 May 18 j 11:14	22° <u>♂</u> 22'03	32.90149 AU	max. Earth dist.	-4632 Dec 03 j 09:13	5° <u>♂</u> 30'00	36.76421 AU
opposition	-4639 May 21 j 08:03	22° <u>♂</u> 17'52	0°-2'-37	retrograde	-4631 Mar 14 j 09:18	7° <u>♂</u> 28'52	
direct	-4639 Aug 09 j 08:35	21° <u>♂</u> 02'52		min. Earth dist.	-4631 Jun 01 j 17:29	6° <u>♂</u> 19'37	34.89493 AU
				opposition	-4631 Jun 04 j 20:26	6° <u>♂</u> 15'15	-4°-25'-30
conjunction	-4639 Nov 18 j 12:45	23° <u>♂</u> 11'28	0°-18'-47	direct	-4631 Aug 23 j 23:34	5° <u>♂</u> 03'12	
minimum elong	-4639 Nov 18 j 12:44	23° <u>♂</u> 11'28	0°18'53				
max. Earth dist.	-4639 Nov 21 j 09:27	23° <u>♂</u> 17'12	35.02327 AU	conjunction	-4631 Dec 02 j 03:11	7° <u>♂</u> 03'01	-4°-25'-13
retrograde	-4638 Mar 02 j 17:13	25° <u>♂</u> 23'16		minimum elong	-4631 Dec 02 j 03:02	7° <u>♂</u> 03'01	4°25'21
min. Earth dist.	-4638 May 20 j 14:31	24° <u>♂</u> 11'38	33.14482 AU	max. Earth dist.	-4631 Dec 05 j 06:33	7° <u>♂</u> 08'56	37.01531 AU
opposition	-4638 May 23 j 11:40	24° <u>♂</u> 07'27	0°-37'-32	retrograde	-4630 Mar 16 j 07:00	9° <u>♂</u> 06'51	
direct	-4638 Aug 11 j 10:33	22° <u>♂</u> 52'52		min. Earth dist.	-4630 Jun 03 j 14:23	7° <u>♂</u> 57'57	35.14785 AU
				opposition	-4630 Jun 06 j 19:00	7° <u>♂</u> 53'30	-4°-55'-32
conjunction	-4638 Nov 20 j 13:21	25° <u>♂</u> 00'18	0°-51'-27	direct	-4630 Aug 25 j 22:26	6° <u>♂</u> 41'45	
minimum elong	-4638 Nov 20 j 13:19	25° <u>♂</u> 00'18	0°51'33				
max. Earth dist.	-4638 Nov 23 j 10:53	25° <u>♂</u> 06'04	35.26806 AU	conjunction	-4630 Dec 03 j 23:35	8° <u>♂</u> 40'35	-4°-53'-25
retrograde	-4637 Mar 04 j 18:56	27° <u>♂</u> 11'04		minimum elong	-4630 Dec 03 j 23:26	8° <u>♂</u> 40'34	4°53'35
min. Earth dist.	-4637 May 22 j 15:18	25° <u>♂</u> 59'55	33.39117 AU	max. Earth dist.	-4630 Dec 07 j 03:54	8° <u>♂</u> 46'31	37.26742 AU
opposition	-4637 May 25 j 14:41	25° <u>♂</u> 55'37	-1°-11'-54	retrograde	-4629 Mar 18 j 04:55	10° <u>♂</u> 43'29	
direct	-4637 Aug 13 j 14:07	24° <u>♂</u> 41'27		min. Earth dist.	-4629 Jun 05 j 12:21	9° <u>♂</u> 34'50	35.40227 AU
				opposition	-4629 Jun 08 j 17:19	9° <u>♂</u> 30'24	-5°-24'-54
conjunction	-4637 Nov 22 j 13:16	26° <u>♂</u> 47'46	-1°-23'-38	direct	-4629 Aug 27 j 19:55	8° <u>♂</u> 18'58	
minimum elong	-4637 Nov 22 j 13:13	26° <u>♂</u> 47'46	1°23'45				
max. Earth dist.	-4637 Nov 25 j 12:06	26° <u>♂</u> 53'35	35.51517 AU	conjunction	-4629 Dec 05 j 19:31	10° <u>♂</u> 16'50	-5°-21'00
retrograde	-4636 Mar 05 j 20:30	28° <u>♂</u> 57'31		minimum elong	-4629 Dec 05 j 19:21	10° <u>♂</u> 16'49	5°21'09
min. Earth dist.	-4636 May 23 j 17:28	27° <u>♂</u> 46'42	33.63983 AU	max. Earth dist.	-4629 Dec 09 j 01:12	10° <u>♂</u> 22'50	37.52108 AU
opposition	-4636 May 26 j 17:17	27° <u>♂</u> 42'24	-1°-45'-41	retrograde	-4628 Mar 18 j 23:08	12° <u>♂</u> 18'50	
direct	-4636 Aug 14 j 16:54	26° <u>♂</u> 28'39		min. Earth dist.	-4628 Jun 06 j 09:06	11° <u>♂</u> 10'32	35.65814 AU
				opposition	-4628 Jun 09 j 14:59	11° <u>♂</u> 06'03	-5°-53'-34
conjunction	-4636 Nov 23 j 12:58	28° <u>♂</u> 33'51	-1°-55'-18	direct	-4628 Aug 28 j 19:27	9° <u>♂</u> 54'56	
minimum elong	-4636 Nov 23 j 12:54	28° <u>♂</u> 33'51	1°55'24				
max. Earth dist.	-4636 Nov 26 j 13:07	28° <u>♂</u> 39'44	35.76404 AU	conjunction	-4628 Dec 06 j 15:00	11° <u>♂</u> 51'53	-5°-47'-58
	-4635 Jan 10 j 20:10	0° <u>♂</u>		minimum elong	-4628 Dec 06 j 14:49	11° <u>♂</u> 51'52	5°48'08
retrograde	-4635 Mar 07 j 19:33	0° <u>♂</u> 42'35		max. Earth dist.	-4628 Dec 09 j 20:39	11° <u>♂</u> 57'50	37.77609 AU
	-4635 May 05 j 11:43	30° <u>♂</u> <u>R</u> <u>♂</u>		retrograde	-4627 Mar 20 j 18:07	13° <u>♂</u> 53'02	
min. Earth dist.	-4635 May 25 j 18:14	29° <u>♂</u> 32'09	33.88983 AU	min. Earth dist.	-4627 Jun 08 j 05:05	12° <u>♂</u> 45'03	35.91553 AU
opposition	-4635 May 28 j 19:00	29° <u>♂</u> 27'49	-2°-18'-54	opposition	-4627 Jun 11 j 12:04	12° <u>♂</u> 40'32	-6°-21'-33
direct	-4635 Aug 16 j 20:48	28° <u>♂</u> 14'26		direct	-4627 Aug 30 j 16:54	11° <u>♂</u> 29'46	
	-4635 Nov 15 j 22:12	0° <u>♂</u>					
conjunction	-4635 Nov 25 j 12:02	0° <u>♂</u> 18'33	-2°-26'-25	conjunction	-4627 Dec 08 j 10:11	13° <u>♂</u> 25'49	-6°-14'-18
minimum elong	-4635 Nov 25 j 11:56	0° <u>♂</u> 18'32	2°26'32	minimum elong	-4627 Dec 08 j 09:59	13° <u>♂</u> 25'48	6°14'27
max. Earth dist.	-4635 Nov 28 j 12:12	0° <u>♂</u> 24'23	36.01370 AU	max. Earth dist.	-4627 Dec 11 j 17:38	13° <u>♂</u> 31'53	38.03227 AU
retrograde	-4634 Mar 09 j 18:23	2° <u>♂</u> 26'17			-4626 Feb 05 j 16:42	15° <u>♂</u>	
min. Earth dist.	-4634 May 27 j 18:30	1° <u>♂</u> 16'12	34.14065 AU	retrograde	-4626 Mar 22 j 11:17	15° <u>♂</u> 26'08	
opposition	-4634 May 30 j 20:17	1° <u>♂</u> 11'50	-2°-51'-30		-4626 May 07 j 20:06	15° <u>♂</u> <u>R</u> <u>♂</u>	
	-4634 Aug 09 j 20:19	30° <u>♂</u> <u>R</u> <u>♂</u>		min. Earth dist.	-4626 Jun 10 j 01:55	14° <u>♂</u> 18'27	36.17380 AU
direct	-4634 Aug 18 j 21:48	29° <u>♂</u> 58'49		opposition	-4626 Jun 13 j 08:42	14° <u>♂</u> 13'58	-6°-48'-52
	-4634 Aug 27 j 20:44	0° <u>♂</u>		direct	-4626 Sep 01 j 14:58	13° <u>♂</u> 03'33	
				conjunction	-4626 Dec 10 j 04:43	14° <u>♂</u> 58'43	-6°-40'00



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 18

Attention, astronomical year style is used: The year -4626 in astronomical counting style is the year 4627 BCE in historical counting style.

minimum elong	-4626 Dec 10 j 04:31	14°M58'42	6°40'11	minimum elong	-4618 Dec 21 j 21:09	26°M47'20	9°43'47
	-4626 Dec 10 j 21:35	15°M		max. Earth dist.	-4618 Dec 25 j 05:49	26°M53'08	40.30126 AU
max. Earth dist.	-4626 Dec 13 j 11:50	15°M04'43	38.28909 AU	retrograde	-4617 Apr 04 j 23:57	28°M40'52	
retrograde	-4625 Mar 24 j 06:54	16°M58'15		min. Earth dist.	-4617 Jun 23 j 23:03	27°M35'28	38.45527 AU
min. Earth dist.	-4625 Jun 11 j 20:30	15°M50'57	36.43255 AU	opposition	-4617 Jun 27 j 06:28	27°M31'07	-10°-24'-44
opposition	-4625 Jun 15 j 04:50	15°M46'23	-7°-15'-29	direct	-4617 Sep 15 j 12:33	26°M23'17	
	-4625 Jul 22 j 09:06	15°RM					
direct	-4625 Sep 03 j 10:04	14°M36'19		conjunction	-4617 Dec 23 j 12:53	28°M11'27	-10°-3'-48
	-4625 Oct 15 j 00:55	15°M		minimum elong	-4617 Dec 23 j 12:40	28°M11'26	10°04'00
				max. Earth dist.	-4617 Dec 26 j 21:50	28°M17'14	40.54620 AU
conjunction	-4625 Dec 11 j 23:03	16°M30'40	-7°-5'-5		-4616 Mar 18 j 03:55	0°M	
minimum elong	-4625 Dec 11 j 22:51	16°M30'39	7°05'15	retrograde	-4616 Apr 05 j 15:52	0°M04'15	
max. Earth dist.	-4625 Dec 15 j 07:17	16°M36'42	38.54593 AU		-4616 Apr 24 j 05:16	30°RM	
retrograde	-4624 Mar 25 j 02:15	18°M29'25		min. Earth dist.	-4616 Jun 24 j 14:47	28°M59'06	38.70198 AU
min. Earth dist.	-4624 Jun 12 j 17:06	17°M22'22	36.69113 AU	opposition	-4616 Jun 27 j 22:39	28°M54'45	-10°-45'-28
opposition	-4624 Jun 16 j 00:38	17°M17'53	-7°-41'-25	direct	-4616 Sep 16 j 04:31	27°M47'09	
direct	-4624 Sep 04 j 04:47	16°M08'09					
				conjunction	-4616 Dec 24 j 03:54	29°M34'38	-10°-23'-26
conjunction	-4624 Dec 12 j 17:05	18°M01'41	-7°-29'-32	minimum elong	-4616 Dec 24 j 03:40	29°M34'37	10°23'39
minimum elong	-4624 Dec 12 j 16:53	18°M01'40	7°29'44	max. Earth dist.	-4616 Dec 27 j 12:19	29°M40'20	40.79049 AU
max. Earth dist.	-4624 Dec 16 j 01:23	18°M07'40	38.80221 AU		-4615 Jan 08 j 04:18	0°M	
retrograde	-4623 Mar 26 j 22:04	19°M59'40		retrograde	-4615 Apr 07 j 07:16	1°M26'46	
min. Earth dist.	-4623 Jun 14 j 11:35	18°M52'56	36.94866 AU	min. Earth dist.	-4615 Jun 26 j 06:26	0°M21'51	38.94818 AU
opposition	-4623 Jun 17 j 19:51	18°M48'26	-8°-6'-42	opposition	-4615 Jun 29 j 14:37	0°M17'30	-11°-5'-34
direct	-4623 Sep 05 j 23:18	17°M39'01			-4615 Jul 13 j 03:36	30°RM	
				direct	-4615 Sep 17 j 20:09	29°M10'10	
conjunction	-4623 Dec 14 j 10:45	19°M31'46	-7°-53'-23		-4615 Nov 20 j 08:42	0°M	
minimum elong	-4623 Dec 14 j 10:32	19°M31'45	7°53'34	conjunction	-4615 Dec 25 j 18:46	0°M56'58	-10°-42'-27
max. Earth dist.	-4623 Dec 17 j 18:46	19°M37'42	39.05693 AU	minimum elong	-4615 Dec 25 j 18:34	0°M56'57	10°42'40
retrograde	-4622 Mar 28 j 17:07	21°M28'59		max. Earth dist.	-4615 Dec 29 j 04:21	1°M02'43	41.03411 AU
min. Earth dist.	-4622 Jun 16 j 06:44	20°M22'31	37.20460 AU	retrograde	-4614 Apr 08 j 18:33	2°M48'27	
opposition	-4622 Jun 19 j 14:41	20°M18'03	-8°-31'-19	min. Earth dist.	-4614 Jun 27 j 22:32	1°M43'45	39.19342 AU
direct	-4622 Sep 07 j 17:06	19°M08'56		opposition	-4614 Jul 01 j 06:03	1°M39'26	-11°-25'-2
				direct	-4614 Sep 19 j 14:39	0°M32'22	
conjunction	-4622 Dec 16 j 04:11	21°M00'55	-8°-16'-37	conjunction	-4614 Dec 27 j 09:13	2°M18'31	-11°00'-54
minimum elong	-4622 Dec 16 j 03:58	21°M00'54	8°16'49	minimum elong	-4614 Dec 27 j 09:00	2°M18'31	11°01'07
max. Earth dist.	-4622 Dec 19 j 12:54	21°M06'52	39.30981 AU	max. Earth dist.	-4614 Dec 30 j 17:47	2°M24'11	41.27676 AU
retrograde	-4621 Mar 30 j 07:39	22°M57'22		retrograde	-4613 Apr 10 j 08:49	4°M09'23	
min. Earth dist.	-4621 Jun 18 j 01:32	21°M51'08	37.45833 AU	min. Earth dist.	-4613 Jun 29 j 12:53	3°M04'59	39.43752 AU
opposition	-4621 Jun 21 j 09:07	21°M46'42	-8°-55'-18	opposition	-4613 Jul 02 j 21:15	3°M00'38	-11°-43'-52
direct	-4621 Sep 09 j 14:17	20°M37'53		direct	-4613 Sep 21 j 06:08	1°M53'50	
conjunction	-4621 Dec 17 j 20:59	22°M29'04	-8°-39'-16	conjunction	-4613 Dec 28 j 23:22	3°M39'22	-11°-18'-46
minimum elong	-4621 Dec 17 j 20:46	22°M29'03	8°39'26	minimum elong	-4613 Dec 28 j 23:10	3°M39'21	11°18'59
max. Earth dist.	-4621 Dec 21 j 04:34	22°M34'54	39.56042 AU	max. Earth dist.	-4612 Jan 01 j 08:39	3°M45'03	41.51787 AU
retrograde	-4620 Mar 30 j 23:17	24°M24'47		retrograde	-4612 Apr 10 j 23:22	5°M29'38	
min. Earth dist.	-4620 Jun 18 j 19:04	23°M18'48	37.70997 AU	min. Earth dist.	-4612 Jun 30 j 05:15	4°M25'24	39.67980 AU
opposition	-4620 Jun 22 j 03:12	23°M14'21	-9°-18'-37	opposition	-4612 Jul 03 j 12:15	4°M21'09	-12°-2'-7
direct	-4620 Sep 10 j 09:40	22°M05'48		direct	-4612 Sep 21 j 20:51	3°M14'37	
conjunction	-4620 Dec 18 j 13:37	23°M56'12	-9°-1'-18	conjunction	-4612 Dec 29 j 13:31	4°M59'33	-11°-36'-4
minimum elong	-4620 Dec 18 j 13:24	23°M56'11	9°01'30	minimum elong	-4612 Dec 29 j 13:18	4°M59'32	11°36'17
max. Earth dist.	-4620 Dec 21 j 22:15	24°M02'04	39.80891 AU	max. Earth dist.	-4611 Jan 01 j 22:18	5°M05'09	41.75689 AU
retrograde	-4619 Apr 01 j 14:01	25°M51'10		retrograde	-4611 Apr 12 j 14:11	6°M49'13	
min. Earth dist.	-4619 Jun 20 j 13:42	24°M45'20	37.95964 AU	min. Earth dist.	-4611 Jul 01 j 19:21	5°M45'14	39.91951 AU
opposition	-4619 Jun 23 j 20:40	24°M40'58	-9°-41'-18	opposition	-4611 Jul 05 j 02:36	5°M40'59	-12°-19'-46
direct	-4619 Sep 12 j 04:38	23°M32'40		direct	-4611 Sep 23 j 10:40	4°M34'42	
conjunction	-4619 Dec 20 j 05:47	25°M22'17	-9°-22'-44	conjunction	-4611 Dec 31 j 03:18	6°M19'04	-11°-52'-50
minimum elong	-4619 Dec 20 j 05:34	25°M22'16	9°22'56	minimum elong	-4611 Dec 31 j 03:06	6°M19'03	11°53'04
max. Earth dist.	-4619 Dec 23 j 13:45	25°M28'04	40.05573 AU	max. Earth dist.	-4610 Jan 03 j 11:10	6°M24'34	41.99293 AU
retrograde	-4618 Apr 03 j 06:37	27°M16'31		retrograde	-4610 Apr 14 j 06:06	8°M08'09	
min. Earth dist.	-4618 Jun 22 j 05:37	26°M10'57	38.20789 AU	min. Earth dist.	-4610 Jul 03 j 10:39	7°M04'21	40.15608 AU
opposition	-4618 Jun 25 j 13:41	26°M06'33	-10°-3'-20	opposition	-4610 Jul 06 j 16:57	7°M00'11	-12°-36'-52
direct	-4618 Sep 13 j 21:15	24°M58'28		direct	-4610 Sep 24 j 23:14	5°M54'08	
conjunction	-4618 Dec 21 j 21:22	26°M47'21	-9°-43'-35				



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 19

Attention, astronomical year style is used: The year -4609 in astronomical counting style is the year 4610 BCE in historical counting style.

conjunction	-4609 Jan 01 j 16:53	7° <del>2</del> 37'55	-12°-9'-5	retrograde	-4601 Apr 25 j 15:52	19° <del>2</del> 27'57	
minimum elong	-4609 Jan 01 j 16:41	7° <del>2</del> 37'54	12°09'18	min. Earth dist.	-4601 Jul 15 j 09:24	18° <del>2</del> 25'41	42.14334 AU
max. Earth dist.	-4609 Jan 05 j 00:59	7° <del>2</del> 43'25	42.22557 AU	opposition	-4601 Jul 18 j 11:30	18° <del>2</del> 21'50	-14°-46'-25
retrograde	-4609 Apr 15 j 18:12	9° <del>2</del> 26'26		direct	-4601 Oct 06 j 23:53	17° <del>2</del> 17'36	
min. Earth dist.	-4609 Jul 05 j 01:36	8° <del>2</del> 22'48	40.38883 AU				
opposition	-4609 Jul 08 j 06:57	8° <del>2</del> 18'41	-12°-53'-25	conjunction	-4600 Jan 13 j 07:07	18° <del>2</del> 56'42	-14°-12'-17
direct	-4609 Sep 26 j 14:53	7° <del>2</del> 12'52		minimum elong	-4600 Jan 13 j 06:57	18° <del>2</del> 56'42	14°12'32
				max. Earth dist.	-4600 Jan 16 j 10:54	19° <del>2</del> 01'41	44.18354 AU
conjunction	-4608 Jan 03 j 06:12	8° <del>2</del> 56'05	-12°-24'-48	retrograde	-4600 Apr 26 j 04:59	20° <del>2</del> 40'31	
minimum elong	-4608 Jan 03 j 06:00	8° <del>2</del> 56'04	12°25'02	min. Earth dist.	-4600 Jul 15 j 22:24	19° <del>2</del> 38'21	42.35208 AU
max. Earth dist.	-4608 Jan 06 j 12:38	9° <del>2</del> 01'27	42.45440 AU	opposition	-4600 Jul 18 j 22:54	19° <del>2</del> 34'36	-14°-58'-11
retrograde	-4608 Apr 16 j 06:33	10° <del>2</del> 44'01		direct	-4600 Oct 07 j 10:11	18° <del>2</del> 30'35	
min. Earth dist.	-4608 Jul 05 j 15:16	9° <del>2</del> 40'35	40.61784 AU				
opposition	-4608 Jul 08 j 20:36	9° <del>2</del> 36'30	-13°-9'-25	conjunction	-4599 Jan 13 j 18:25	20° <del>2</del> 09'15	-14°-23'-30
direct	-4608 Sep 27 j 05:09	8° <del>2</del> 30'53		minimum elong	-4599 Jan 13 j 18:17	20° <del>2</del> 09'15	14°23'45
				max. Earth dist.	-4599 Jan 16 j 21:45	20° <del>2</del> 14'11	44.38904 AU
conjunction	-4607 Jan 03 j 19:19	10° <del>2</del> 13'32	-12°-40'-1	retrograde	-4599 Apr 27 j 17:15	21° <del>2</del> 52'36	
minimum elong	-4607 Jan 03 j 19:07	10° <del>2</del> 13'31	12°40'15	min. Earth dist.	-4599 Jul 17 j 09:48	20° <del>2</del> 50'38	42.55739 AU
max. Earth dist.	-4607 Jan 07 j 02:04	10° <del>2</del> 18'53	42.67946 AU	opposition	-4599 Jul 20 j 09:59	20° <del>2</del> 46'54	-15°-9'-29
retrograde	-4607 Apr 17 j 17:30	12° <del>2</del> 00'54		direct	-4599 Oct 08 j 19:51	19° <del>2</del> 43'04	
min. Earth dist.	-4607 Jul 07 j 06:18	10° <del>2</del> 57'34	40.84314 AU				
opposition	-4607 Jul 10 j 10:00	10° <del>2</del> 53'34	-13°-24'-54	conjunction	-4598 Jan 15 j 05:22	21° <del>2</del> 21'19	-14°-34'-16
direct	-4607 Sep 28 j 20:48	9° <del>2</del> 48'10		minimum elong	-4598 Jan 15 j 05:13	21° <del>2</del> 21'19	14°34'31
				max. Earth dist.	-4598 Jan 18 j 07:04	21° <del>2</del> 26'07	44.59076 AU
conjunction	-4606 Jan 05 j 08:05	11° <del>2</del> 30'14	-12°-54'-44	retrograde	-4598 Apr 29 j 05:13	23° <del>2</del> 04'13	
minimum elong	-4606 Jan 05 j 07:54	11° <del>2</del> 30'14	12°54'59	min. Earth dist.	-4598 Jul 18 j 21:45	22° <del>2</del> 02'23	42.75882 AU
max. Earth dist.	-4606 Jan 08 j 13:43	11° <del>2</del> 35'29	42.90118 AU	opposition	-4598 Jul 21 j 20:54	21° <del>2</del> 58'44	-15°-20'-18
retrograde	-4606 Apr 19 j 06:52	13° <del>2</del> 17'03		direct	-4598 Oct 10 j 06:01	20° <del>2</del> 55'05	
min. Earth dist.	-4606 Jul 08 j 18:45	12° <del>2</del> 13'55	41.06531 AU				
opposition	-4606 Jul 11 j 22:49	12° <del>2</del> 09'54	-13°-39'-49	conjunction	-4597 Jan 16 j 16:21	22° <del>2</del> 32'54	-14°-44'-36
direct	-4606 Sep 30 j 09:09	11° <del>2</del> 04'41		minimum elong	-4597 Jan 16 j 16:13	22° <del>2</del> 32'54	14°44'51
				max. Earth dist.	-4597 Jan 19 j 18:10	22° <del>2</del> 37'41	44.78836 AU
conjunction	-4605 Jan 06 j 20:29	12° <del>2</del> 46'13	-13°-8'-56	retrograde	-4597 Apr 30 j 13:15	24° <del>2</del> 15'21	
minimum elong	-4605 Jan 06 j 20:17	12° <del>2</del> 46'12	13°09'10	min. Earth dist.	-4597 Jul 20 j 10:02	23° <del>2</del> 13'36	42.95570 AU
max. Earth dist.	-4605 Jan 10 j 01:46	12° <del>2</del> 51'25	43.12005 AU	opposition	-4597 Jul 23 j 07:39	23° <del>2</del> 10'02	-15°-30'-42
retrograde	-4605 Apr 20 j 20:26	14° <del>2</del> 32'29		direct	-4597 Oct 11 j 19:14	22° <del>2</del> 06'33	
min. Earth dist.	-4605 Jul 10 j 08:40	13° <del>2</del> 29'28	41.28506 AU				
opposition	-4605 Jul 13 j 11:37	13° <del>2</del> 25'32	-13°-54'-13	conjunction	-4596 Jan 18 j 02:59	23° <del>2</del> 43'57	-14°-54'-31
direct	-4605 Oct 01 j 20:24	12° <del>2</del> 20'30		minimum elong	-4596 Jan 18 j 02:50	23° <del>2</del> 43'56	14°54'46
				max. Earth dist.	-4596 Jan 21 j 02:43	23° <del>2</del> 48'35	44.98145 AU
conjunction	-4604 Jan 08 j 08:42	14° <del>2</del> 01'30	-13°-22'-37	retrograde	-4596 Apr 30 j 22:45	25° <del>2</del> 25'56	
minimum elong	-4604 Jan 08 j 08:31	14° <del>2</del> 01'30	13°22'51	min. Earth dist.	-4596 Jul 20 j 20:40	24° <del>2</del> 24'20	43.14798 AU
max. Earth dist.	-4604 Jan 11 j 14:21	14° <del>2</del> 06'42	43.33679 AU	opposition	-4596 Jul 23 j 18:09	24° <del>2</del> 20'47	-15°-40'-39
retrograde	-4604 Apr 21 j 08:09	15° <del>2</del> 47'14		direct	-4596 Oct 12 j 06:52	23° <del>2</del> 17'27	
min. Earth dist.	-4604 Jul 10 j 21:11	14° <del>2</del> 44'24	41.50260 AU				
opposition	-4604 Jul 13 j 23:59	14° <del>2</del> 40'29	-14°-8'-4	conjunction	-4595 Jan 18 j 13:32	24° <del>2</del> 54'24	-15°-4'-1
direct	-4604 Oct 02 j 09:26	13° <del>2</del> 35'38		minimum elong	-4595 Jan 18 j 13:26	24° <del>2</del> 54'24	15°04'16
				max. Earth dist.	-4595 Jan 21 j 12:51	24° <del>2</del> 58'59	45.16990 AU
conjunction	-4603 Jan 08 j 20:39	15° <del>2</del> 16'09	-13°-35'-47	retrograde	-4595 May 02 j 07:50	26° <del>2</del> 35'57	
minimum elong	-4603 Jan 08 j 20:28	15° <del>2</del> 16'08	13°36'00	min. Earth dist.	-4595 Jul 22 j 08:58	25° <del>2</del> 34'22	43.33578 AU
max. Earth dist.	-4603 Jan 12 j 00:57	15° <del>2</del> 21'14	43.55150 AU	opposition	-4595 Jul 25 j 04:20	25° <del>2</del> 30'56	-15°-50'-11
retrograde	-4603 Apr 22 j 20:11	17° <del>2</del> 01'21		direct	-4595 Oct 13 j 18:40	24° <del>2</del> 27'44	
min. Earth dist.	-4603 Jul 12 j 09:12	15° <del>2</del> 58'42	41.71831 AU				
opposition	-4603 Jul 15 j 12:00	15° <del>2</del> 54'49	-14°-21'-22	conjunction	-4594 Jan 19 j 23:53	26° <del>2</del> 04'15	-15°-13'-7
direct	-4603 Oct 03 j 21:25	14° <del>2</del> 50'09		minimum elong	-4594 Jan 19 j 23:45	26° <del>2</del> 04'15	15°13'21
				max. Earth dist.	-4594 Jan 22 j 22:20	26° <del>2</del> 08'46	45.35430 AU
conjunction	-4602 Jan 10 j 08:27	16° <del>2</del> 30'12	-13°-48'-27	retrograde	-4594 May 03 j 18:04	27° <del>2</del> 45'20	
minimum elong	-4602 Jan 10 j 08:17	16° <del>2</del> 30'11	13°48'41	min. Earth dist.	-4594 Jul 23 j 18:56	26° <del>2</del> 43'54	43.51967 AU
max. Earth dist.	-4602 Jan 13 j 13:29	16° <del>2</del> 35'18	43.76435 AU	opposition	-4594 Jul 26 j 14:13	26° <del>2</del> 40'28	-15°-59'-16
retrograde	-4602 Apr 24 j 05:27	18° <del>2</del> 14'55		direct	-4594 Oct 15 j 04:45	25° <del>2</del> 37'23	
min. Earth dist.	-4602 Jul 13 j 22:22	17° <del>2</del> 12'24	41.93193 AU				
opposition	-4602 Jul 16 j 23:53	17° <del>2</del> 08'35	-14°-34'-9	conjunction	-4593 Jan 21 j 09:39	27° <del>2</del> 13'29	-15°-21'-46
direct	-4602 Oct 05 j 11:07	16° <del>2</del> 04'08		minimum elong	-4593 Jan 21 j 09:34	27° <del>2</del> 13'29	15°22'02
				max. Earth dist.	-4593 Jan 24 j 06:52	27° <del>2</del> 17'53	45.53509 AU
conjunction	-4601 Jan 11 j 19:49	17° <del>2</del> 43'42	-14°00'-36	retrograde	-4593 May 05 j 06:18	28° <del>2</del> 54'08	
minimum elong	-4601 Jan 11 j 19:39	17° <del>2</del> 43'41	14°00'50	min. Earth dist.	-4593 Jul 25 j 05:45	27° <del>2</del> 52'46	43.70040 AU
max. Earth dist.	-4601 Jan 14 j 23:43	17° <del>2</del> 48'43	43.97519 AU	opposition	-4593 Jul 28 j 00:02	27° <del>2</del> 49'24	-16°-7'-55



Attention, astronomical year style is used: The year -4593 in astronomical counting style is the year 4594 BCE in historical counting style.

direct	-4593 Oct 16 j 12:10	26° $\mathring{A}$ 46'26		min. Earth dist.	-4585 Aug 03 j 11:58	6° $\mathring{B}$ 48'41	45.04520 AU
				opposition	-4585 Aug 05 j 22:54	6° $\mathring{B}$ 45'45	-17°-1'-39
conjunction	-4592 Jan 22 j 19:36	28° $\mathring{A}$ 22'09	-15°-30'-1	direct	-4585 Oct 25 j 15:05	5° $\mathring{B}$ 44'01	
minimum elong	-4592 Jan 22 j 19:30	28° $\mathring{A}$ 22'08	15°30'15				
max. Earth dist.	-4592 Jan 25 j 17:08	28° $\mathring{A}$ 26'33	45.71304 AU	conjunction	-4584 Jan 31 j 20:57	7° $\mathring{B}$ 17'09	-16°-21'-14
	-4592 Apr 21 j 03:39	0° $\mathring{B}$		minimum elong	-4584 Jan 31 j 20:56	7° $\mathring{B}$ 17'09	16°21'28
retrograde	-4592 May 05 j 14:28	0° $\mathring{B}$ 02'21		max. Earth dist.	-4584 Feb 03 j 11:08	7° $\mathring{B}$ 20'59	47.03599 AU
	-4592 May 20 j 00:45	30° $\mathring{R}$ $\mathring{A}$		retrograde	-4584 May 14 j 10:40	8° $\mathring{B}$ 54'35	
min. Earth dist.	-4592 Jul 25 j 16:07	29° $\mathring{A}$ 01'05	43.87830 AU	min. Earth dist.	-4584 Aug 03 j 20:18	7° $\mathring{B}$ 54'17	45.19562 AU
opposition	-4592 Jul 28 j 09:26	28° $\mathring{A}$ 57'46	-16°-16'-7	opposition	-4584 Aug 06 j 06:56	7° $\mathring{B}$ 51'22	-17°-6'-39
direct	-4592 Oct 16 j 22:59	27° $\mathring{A}$ 54'56		direct	-4584 Oct 26 j 00:56	6° $\mathring{B}$ 49'45	
conjunction	-4591 Jan 23 j 05:15	29° $\mathring{A}$ 30'16	-15°-37'-49	conjunction	-4583 Feb 01 j 05:36	8° $\mathring{B}$ 22'35	-16°-25'-59
minimum elong	-4591 Jan 23 j 05:10	29° $\mathring{A}$ 30'16	15°38'05	minimum elong	-4583 Feb 01 j 05:33	8° $\mathring{B}$ 22'35	16°26'14
max. Earth dist.	-4591 Jan 26 j 01:12	29° $\mathring{A}$ 34'34	45.88849 AU	max. Earth dist.	-4583 Feb 03 j 18:11	8° $\mathring{B}$ 26'19	47.18309 AU
	-4591 Feb 12 j 03:07	0° $\mathring{B}$		retrograde	-4583 May 15 j 21:54	9° $\mathring{B}$ 59'41	
retrograde	-4591 May 06 j 22:25	1° $\mathring{B}$ 10'04		min. Earth dist.	-4583 Aug 05 j 06:18	8° $\mathring{B}$ 59'25	45.34119 AU
min. Earth dist.	-4591 Jul 27 j 01:17	0° $\mathring{B}$ 08'57	44.05385 AU	opposition	-4583 Aug 07 j 15:01	8° $\mathring{B}$ 56'36	-17°-11'-17
opposition	-4591 Jul 29 j 18:43	0° $\mathring{B}$ 05'39	-16°-23'-52	direct	-4583 Oct 27 j 07:07	7° $\mathring{B}$ 55'05	
	-4591 Aug 03 j 10:39	30° $\mathring{R}$ $\mathring{A}$					
direct	-4591 Oct 18 j 09:17	29° $\mathring{A}$ 02'57		conjunction	-4582 Feb 02 j 14:05	9° $\mathring{B}$ 27'37	-16°-30'-25
	-4591 Dec 29 j 19:20	0° $\mathring{B}$		minimum elong	-4582 Feb 02 j 14:04	9° $\mathring{B}$ 27'37	16°30'40
				max. Earth dist.	-4582 Feb 05 j 02:19	9° $\mathring{B}$ 31'18	47.32561 AU
conjunction	-4590 Jan 24 j 14:40	0° $\mathring{B}$ 37'56	-15°-45'-13	retrograde	-4582 May 17 j 06:00	11° $\mathring{B}$ 04'22	
minimum elong	-4590 Jan 24 j 14:35	0° $\mathring{B}$ 37'55	15°45'27	min. Earth dist.	-4582 Aug 06 j 14:54	10° $\mathring{B}$ 04'10	45.48223 AU
max. Earth dist.	-4590 Jan 27 j 10:48	0° $\mathring{B}$ 42'13	46.06155 AU	opposition	-4582 Aug 08 j 22:43	10° $\mathring{B}$ 01'24	-17°-15'-35
retrograde	-4590 May 08 j 05:59	2° $\mathring{B}$ 17'22		direct	-4582 Oct 28 j 14:35	8° $\mathring{B}$ 59'59	
min. Earth dist.	-4590 Jul 28 j 11:57	1° $\mathring{B}$ 16'20	44.22696 AU				
opposition	-4590 Jul 31 j 03:51	1° $\mathring{B}$ 13'06	-16°-31'-11	conjunction	-4581 Feb 03 j 22:17	10° $\mathring{B}$ 32'12	-16°-34'-29
direct	-4590 Oct 19 j 20:29	0° $\mathring{B}$ 10'34		minimum elong	-4581 Feb 03 j 22:15	10° $\mathring{B}$ 32'12	16°34'44
				max. Earth dist.	-4581 Feb 06 j 08:31	10° $\mathring{B}$ 35'45	47.46408 AU
conjunction	-4589 Jan 26 j 00:01	1° $\mathring{B}$ 45'12	-15°-52'-11	retrograde	-4581 May 18 j 14:13	12° $\mathring{B}$ 08'37	
minimum elong	-4589 Jan 25 j 23:56	1° $\mathring{B}$ 45'12	15°52'26	min. Earth dist.	-4581 Aug 07 j 23:08	11° $\mathring{B}$ 08'29	45.61965 AU
max. Earth dist.	-4589 Jan 28 j 19:18	1° $\mathring{B}$ 49'26	46.23240 AU	opposition	-4581 Aug 10 j 06:19	11° $\mathring{B}$ 05'46	-17°-19'-30
retrograde	-4589 May 09 j 15:48	3° $\mathring{B}$ 24'17		direct	-4581 Oct 29 j 21:49	10° $\mathring{B}$ 04'25	
min. Earth dist.	-4589 Jul 29 j 20:35	2° $\mathring{B}$ 23'26	44.39759 AU				
opposition	-4589 Aug 01 j 12:43	2° $\mathring{B}$ 20'12	-16°-38'-4	conjunction	-4580 Feb 05 j 06:26	11° $\mathring{B}$ 36'21	-16°-38'-13
direct	-4589 Oct 21 j 05:05	1° $\mathring{B}$ 17'50		minimum elong	-4580 Feb 05 j 06:27	11° $\mathring{B}$ 36'21	16°38'28
				max. Earth dist.	-4580 Feb 07 j 16:48	11° $\mathring{B}$ 39'54	47.59908 AU
conjunction	-4588 Jan 27 j 09:04	2° $\mathring{B}$ 52'09	-15°-58'-44	retrograde	-4580 May 18 j 18:34	13° $\mathring{B}$ 12'26	
minimum elong	-4588 Jan 27 j 09:00	2° $\mathring{B}$ 52'09	15°58'58	min. Earth dist.	-4580 Aug 08 j 08:18	12° $\mathring{B}$ 12'20	45.75368 AU
max. Earth dist.	-4588 Jan 30 j 03:17	2° $\mathring{B}$ 56'17	46.40057 AU	opposition	-4580 Aug 10 j 13:49	12° $\mathring{B}$ 09'41	-17°-23'-4
retrograde	-4588 May 10 j 02:53	4° $\mathring{B}$ 30'54		direct	-4580 Oct 30 j 08:31	11° $\mathring{B}$ 08'27	
min. Earth dist.	-4588 Jul 30 j 06:51	3° $\mathring{B}$ 30'09	44.56539 AU				
opposition	-4588 Aug 01 j 21:35	3° $\mathring{B}$ 27'00	-16°-44'-33	conjunction	-4579 Feb 05 j 14:30	12° $\mathring{B}$ 40'06	-16°-41'-35
direct	-4588 Oct 21 j 11:58	2° $\mathring{B}$ 24'48		minimum elong	-4579 Feb 05 j 14:29	12° $\mathring{B}$ 40'06	16°41'49
				max. Earth dist.	-4579 Feb 07 j 23:24	12° $\mathring{B}$ 43'33	47.73111 AU
conjunction	-4587 Jan 27 j 18:19	3° $\mathring{B}$ 58'49	-16°-4'-54	retrograde	-4579 May 20 j 00:33	14° $\mathring{B}$ 15'52	
minimum elong	-4587 Jan 27 j 18:15	3° $\mathring{B}$ 58'49	16°05'10	min. Earth dist.	-4579 Aug 09 j 15:12	13° $\mathring{B}$ 15'53	45.88483 AU
max. Earth dist.	-4587 Jan 30 j 12:35	4° $\mathring{B}$ 02'57	46.56566 AU	opposition	-4579 Aug 11 j 20:53	13° $\mathring{B}$ 13'14	-17°-26'-16
retrograde	-4587 May 11 j 11:43	5° $\mathring{B}$ 37'13		direct	-4579 Oct 31 j 17:19	12° $\mathring{B}$ 12'05	
min. Earth dist.	-4587 Jul 31 j 16:22	4° $\mathring{B}$ 36'36	44.72960 AU				
opposition	-4587 Aug 03 j 06:01	4° $\mathring{B}$ 33'32	-16°-50'-37	conjunction	-4578 Feb 06 j 22:19	13° $\mathring{B}$ 43'28	-16°-44'-35
direct	-4587 Oct 22 j 20:23	3° $\mathring{B}$ 31'29		minimum elong	-4578 Feb 06 j 22:20	13° $\mathring{B}$ 43'28	16°44'50
				max. Earth dist.	-4578 Feb 09 j 06:21	13° $\mathring{B}$ 46'52	47.86031 AU
conjunction	-4586 Jan 29 j 03:15	5° $\mathring{B}$ 05'13	-16°-10'-42	retrograde	-4578 May 21 j 08:59	15° $\mathring{B}$ 18'57	
minimum elong	-4586 Jan 29 j 03:13	5° $\mathring{B}$ 05'13	16°10'56	min. Earth dist.	-4578 Aug 11 j 00:06	14° $\mathring{B}$ 19'00	46.01325 AU
max. Earth dist.	-4586 Jan 31 j 19:22	5° $\mathring{B}$ 09'12	46.72696 AU	opposition	-4578 Aug 13 j 04:08	14° $\mathring{B}$ 16'26	-17°-29'-5
retrograde	-4586 May 12 j 21:01	6° $\mathring{B}$ 43'18		direct	-4578 Nov 02 j 00:29	13° $\mathring{B}$ 15'24	
min. Earth dist.	-4586 Aug 02 j 01:19	5° $\mathring{B}$ 42'50	44.88978 AU				
opposition	-4586 Aug 04 j 14:28	5° $\mathring{B}$ 39'47	-16°-56'-19	conjunction	-4577 Feb 08 j 06:02	14° $\mathring{B}$ 46'32	-16°-47'-15
direct	-4586 Oct 24 j 04:31	4° $\mathring{B}$ 37'54		minimum elong	-4577 Feb 08 j 06:02	14° $\mathring{B}$ 46'32	16°47'28
				max. Earth dist.	-4577 Feb 10 j 14:00	14° $\mathring{B}$ 49'54	47.98692 AU
conjunction	-4585 Jan 30 j 12:04	6° $\mathring{B}$ 11'21	-16°-16'-8	retrograde	-4577 May 22 j 17:27	16° $\mathring{B}$ 21'44	
minimum elong	-4585 Jan 30 j 12:01	6° $\mathring{B}$ 11'20	16°16'23	min. Earth dist.	-4577 Aug 12 j 07:31	15° $\mathring{B}$ 21'53	46.13876 AU
max. Earth dist.	-4585 Feb 02 j 03:54	6° $\mathring{B}$ 15'17	46.88385 AU	opposition	-4577 Aug 14 j 11:08	15° $\mathring{B}$ 19'21	-17°-31'-34
retrograde	-4585 May 14 j 03:05	7° $\mathring{B}$ 49'06		direct	-4577 Nov 03 j 06:56	14° $\mathring{B}$ 18'25	



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 21

Attention, astronomical year style is used: The year -4576 in astronomical counting style is the year 4577 BCE in historical counting style.

conjunction	-4576 Feb 09 j 13:40	15°☾49'20	-16°-49'-34	retrograde	-4568 May 31 j 05:52	25°☾36'25	
minimum elong	-4576 Feb 09 j 13:41	15°☾49'20	16°49'48	min. Earth dist.	-4568 Aug 21 j 05:23	24°☾36'59	47.07450 AU
max. Earth dist.	-4576 Feb 11 j 19:40	15°☾52'34	48.11057 AU	opposition	-4568 Aug 22 j 21:14	24°☾35'03	-17°-39'-39
retrograde	-4576 May 23 j 03:18	17°☾24'15		direct	-4568 Nov 11 j 21:49	23°☾34'54	
min. Earth dist.	-4576 Aug 12 j 15:10	16°☾24'30	46.26121 AU				
opposition	-4576 Aug 14 j 17:59	16°☾22'01	-17°-33'-41	conjunction	-4567 Feb 18 j 07:39	25°☾03'59	-16°-56'-51
direct	-4576 Nov 03 j 11:22	15°☾21'12		minimum elong	-4567 Feb 18 j 07:44	25°☾03'59	16°57'05
				max. Earth dist.	-4567 Feb 20 j 03:13	25°☾06'32	49.02511 AU
conjunction	-4575 Feb 09 j 21:24	16°☾51'54	-16°-51'-33	retrograde	-4567 Jun 01 j 12:48	26°☾36'45	
minimum elong	-4575 Feb 09 j 21:26	16°☾51'54	16°51'47	min. Earth dist.	-4567 Aug 22 j 11:28	25°☾37'23	47.15687 AU
max. Earth dist.	-4575 Feb 12 j 03:19	16°☾55'07	48.23083 AU	opposition	-4567 Aug 24 j 03:03	25°☾35'28	-17°-39'-2
retrograde	-4575 May 24 j 09:12	18°☾26'34		direct	-4567 Nov 13 j 03:53	24°☾35'22	
min. Earth dist.	-4575 Aug 13 j 23:53	17°☾26'52	46.37983 AU				
opposition	-4575 Aug 16 j 00:48	17°☾24'28	-17°-35'-28	conjunction	-4566 Feb 19 j 14:13	26°☾04'17	-16°-56'-11
direct	-4575 Nov 04 j 19:24	16°☾23'47		minimum elong	-4566 Feb 19 j 14:17	26°☾04'17	16°56'25
				max. Earth dist.	-4566 Feb 21 j 07:47	26°☾06'43	49.10610 AU
conjunction	-4574 Feb 11 j 04:54	17°☾54'15	-16°-53'-13	retrograde	-4566 Jun 02 j 22:33	27°☾36'50	
minimum elong	-4574 Feb 11 j 04:56	17°☾54'16	16°53'28	min. Earth dist.	-4566 Aug 23 j 18:11	26°☾37'31	47.23635 AU
max. Earth dist.	-4574 Feb 13 j 09:04	17°☾57'23	48.34712 AU	opposition	-4566 Aug 25 j 08:52	26°☾35'40	-17°-38'-7
retrograde	-4574 May 25 j 14:14	19°☾28'41		direct	-4566 Nov 14 j 06:10	25°☾35'38	
min. Earth dist.	-4574 Aug 15 j 06:51	18°☾29'06	46.49410 AU				
opposition	-4574 Aug 17 j 07:26	18°☾26'44	-17°-36'-56	conjunction	-4565 Feb 20 j 20:58	27°☾04'24	-16°-55'-13
direct	-4574 Nov 06 j 04:12	17°☾26'09		minimum elong	-4565 Feb 20 j 21:04	27°☾04'24	16°55'27
				max. Earth dist.	-4565 Feb 22 j 14:42	27°☾06'50	49.18426 AU
conjunction	-4573 Feb 12 j 12:25	18°☾56'26	-16°-54'-36	retrograde	-4565 Jun 04 j 04:41	28°☾36'45	
minimum elong	-4573 Feb 12 j 12:28	18°☾56'26	16°54'49	min. Earth dist.	-4565 Aug 25 j 01:20	27°☾37'28	47.31281 AU
max. Earth dist.	-4573 Feb 14 j 15:08	18°☾59'27	48.45866 AU	opposition	-4565 Aug 26 j 14:32	27°☾35'40	-17°-36'-52
retrograde	-4573 May 26 j 22:02	20°☾30'38		direct	-4565 Nov 15 j 12:03	26°☾35'43	
min. Earth dist.	-4573 Aug 16 j 15:47	19°☾31'04	46.60340 AU				
opposition	-4573 Aug 18 j 14:07	19°☾28'48	-17°-38'-7	conjunction	-4564 Feb 22 j 03:35	28°☾04'21	-16°-53'-57
direct	-4573 Nov 07 j 11:17	18°☾28'19		minimum elong	-4564 Feb 22 j 03:40	28°☾04'21	16°54'10
				max. Earth dist.	-4564 Feb 23 j 19:35	28°☾06'41	49.25953 AU
conjunction	-4572 Feb 13 j 20:01	19°☾58'24	-16°-55'-41	retrograde	-4564 Jun 04 j 08:20	29°☾36'31	
minimum elong	-4572 Feb 13 j 20:03	19°☾58'24	16°55'55	min. Earth dist.	-4564 Aug 25 j 07:00	28°☾37'20	47.38615 AU
max. Earth dist.	-4572 Feb 15 j 21:47	20°☾01'21	48.56513 AU	opposition	-4564 Aug 26 j 20:05	28°☾35'33	-17°-35'-20
retrograde	-4572 May 27 j 05:48	21°☾32'21		direct	-4564 Nov 15 j 19:34	27°☾35'41	
min. Earth dist.	-4572 Aug 16 j 23:14	20°☾32'51	46.70722 AU				
opposition	-4572 Aug 18 j 20:37	20°☾30'38	-17°-39'00	conjunction	-4563 Feb 22 j 10:11	29°☾04'11	-16°-52'-23
direct	-4572 Nov 07 j 17:21	19°☾30'14		minimum elong	-4563 Feb 22 j 10:17	29°☾04'11	16°52'37
				max. Earth dist.	-4563 Feb 24 j 01:08	29°☾06'27	49.33133 AU
conjunction	-4571 Feb 14 j 03:23	21°☾00'06	-16°-56'-30		-4563 Apr 06 j 06:55	0°≈	
minimum elong	-4571 Feb 14 j 03:27	21°☾00'06	16°56'43	retrograde	-4563 Jun 05 j 12:55	0°≈36'12	
max. Earth dist.	-4571 Feb 16 j 02:39	21°☾02'54	48.66615 AU		-4563 Aug 06 j 00:59	30°☾	
retrograde	-4571 May 28 j 14:26	22°☾33'48		min. Earth dist.	-4563 Aug 26 j 14:39	29°☾37'01	47.45582 AU
min. Earth dist.	-4571 Aug 18 j 06:58	21°☾34'19	46.80579 AU	opposition	-4563 Aug 28 j 01:35	29°☾35'20	-17°-33'-29
opposition	-4571 Aug 20 j 02:56	21°☾32'11	-17°-39'-37	direct	-4563 Nov 17 j 03:30	28°☾35'33	
direct	-4571 Nov 08 j 22:21	20°☾31'51			-4562 Feb 20 j 21:29	0°≈	
conjunction	-4570 Feb 15 j 10:41	22°☾01'31	-16°-57'-1	conjunction	-4562 Feb 23 j 16:51	0°≈03'55	-16°-50'-32
minimum elong	-4570 Feb 15 j 10:43	22°☾01'31	16°57'16	minimum elong	-4562 Feb 23 j 16:57	0°≈03'55	16°50'45
max. Earth dist.	-4570 Feb 17 j 09:34	22°☾04'18	48.76209 AU	max. Earth dist.	-4562 Feb 25 j 07:01	0°≈06'08	49.39936 AU
retrograde	-4570 May 29 j 18:57	23°☾34'58		retrograde	-4562 Jun 06 j 19:40	1°≈35'46	
min. Earth dist.	-4570 Aug 19 j 15:04	22°☾35'29	46.89940 AU	min. Earth dist.	-4562 Aug 27 j 20:36	0°≈36'40	47.52123 AU
opposition	-4570 Aug 21 j 09:13	22°☾33'26	-17°-39'-56	opposition	-4562 Aug 29 j 06:57	0°≈35'01	-17°-31'-22
direct	-4570 Nov 10 j 06:38	21°☾33'10			-4562 Sep 30 j 15:45	30°☾	
				direct	-4562 Nov 18 j 09:11	29°☾35'18	
conjunction	-4569 Feb 16 j 17:38	23°☾02'38	-16°-57'-16		-4561 Jan 05 j 05:40	0°≈	
minimum elong	-4569 Feb 16 j 17:43	23°☾02'38	16°57'30				
max. Earth dist.	-4569 Feb 18 j 14:40	23°☾05'18	48.85356 AU	conjunction	-4561 Feb 24 j 23:14	1°≈03'33	-16°-48'-25
retrograde	-4569 May 30 j 23:49	24°☾35'50		minimum elong	-4561 Feb 24 j 23:20	1°≈03'33	16°48'39
min. Earth dist.	-4569 Aug 20 j 21:20	23°☾36'25	46.98880 AU	max. Earth dist.	-4561 Feb 26 j 11:04	1°≈05'37	49.46278 AU
opposition	-4569 Aug 22 j 15:17	23°☾34'23	-17°-39'-57	retrograde	-4561 Jun 08 j 04:16	2°≈35'15	
direct	-4569 Nov 11 j 14:24	22°☾34'10		min. Earth dist.	-4561 Aug 29 j 03:47	1°≈36'08	47.58183 AU
				opposition	-4561 Aug 30 j 12:26	1°≈34'34	-17°-28'-59
conjunction	-4568 Feb 18 j 00:38	24°☾03'27	-16°-57'-13	direct	-4561 Nov 19 j 12:32	0°≈34'55	
minimum elong	-4568 Feb 18 j 00:41	24°☾03'27	16°57'26				
max. Earth dist.	-4568 Feb 19 j 20:38	24°☾06'02	48.94100 AU	conjunction	-4560 Feb 26 j 05:57	2°≈03'02	-16°-46'-4



# Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 22

Attention, astronomical year style is used: The year -4560 in astronomical counting style is the year 4561 BCE in historical counting style.

minimum elong	-4560 Feb 26 j 06:05	2°03'03	16°46'16	min. Earth dist.	-4552 Sep 06 j 10:49	10°22'21	47.92769 AU
max. Earth dist.	-4560 Feb 27 j 17:12	2°05'05	49.52113 AU	opposition	-4552 Sep 07 j 09:18	10°21'17	-16°-55'-37
retrograde	-4560 Jun 08 j 10:10	3°34'33		direct	-4552 Nov 27 j 16:42	9°21'52	
min. Earth dist.	-4560 Aug 29 j 10:53	2°35'26	47.63704 AU				
opposition	-4560 Aug 30 j 17:42	2°33'57	-17°-26'-21	conjunction	-4551 Mar 06 j 13:36	10°49'06	-16°-13'-4
direct	-4560 Nov 19 j 18:09	1°34'20		minimum elong	-4551 Mar 06 j 13:45	10°49'06	16°13'16
				max. Earth dist.	-4551 Mar 07 j 12:51	10°50'25	49.85584 AU
conjunction	-4559 Feb 26 j 12:29	3°02'20	-16°-43'-27	retrograde	-4551 Jun 17 j 11:28	12°19'20	
minimum elong	-4559 Feb 26 j 12:36	3°02'20	16°43'40	opposition	-4551 Sep 08 j 14:06	11°19'15	-16°-50'-30
max. Earth dist.	-4559 Feb 27 j 21:19	3°04'14	49.57425 AU	min. Earth dist.	-4551 Sep 07 j 17:08	11°20'15	47.94921 AU
retrograde	-4559 Jun 09 j 15:20	4°33'40		direct	-4551 Nov 28 j 19:01	10°19'53	
opposition	-4559 Aug 31 j 22:56	3°33'07	-17°-23'-28				
min. Earth dist.	-4559 Aug 30 j 16:45	3°34'34	47.68704 AU	conjunction	-4550 Mar 07 j 19:35	11°47'05	-16°-8'-4
direct	-4559 Nov 21 j 00:20	2°33'31		minimum elong	-4550 Mar 07 j 19:44	11°47'06	16°08'16
				max. Earth dist.	-4550 Mar 08 j 18:35	11°48'24	49.87616 AU
conjunction	-4558 Feb 27 j 18:46	4°01'23	-16°-40'-36	retrograde	-4550 Jun 18 j 17:36	13°17'15	
minimum elong	-4558 Feb 27 j 18:55	4°01'24	16°40'48	opposition	-4550 Sep 09 j 18:49	12°17'15	-16°-45'-9
max. Earth dist.	-4558 Mar 01 j 02:22	4°03'13	49.62218 AU	min. Earth dist.	-4550 Sep 08 j 23:22	12°18'11	47.96647 AU
retrograde	-4558 Jun 10 j 19:05	5°32'32		direct	-4550 Nov 29 j 23:26	11°17'57	
min. Earth dist.	-4558 Sep 01 j 00:19	4°33'22	47.73212 AU				
opposition	-4558 Sep 02 j 04:12	4°32'02	-17°-20'-19	conjunction	-4549 Mar 09 j 01:37	12°45'08	-16°-2'-48
direct	-4558 Nov 22 j 07:42	3°32'27		minimum elong	-4549 Mar 09 j 01:47	12°45'08	16°02'59
				max. Earth dist.	-4549 Mar 09 j 22:20	12°46'19	49.89209 AU
conjunction	-4557 Mar 01 j 01:08	5°00'11	-16°-37'-29	retrograde	-4549 Jun 19 j 23:15	14°15'13	
minimum elong	-4557 Mar 01 j 01:16	5°00'11	16°37'42	opposition	-4549 Sep 10 j 23:25	13°15'17	-16°-39'-33
max. Earth dist.	-4557 Mar 02 j 07:54	5°01'57	49.66567 AU	min. Earth dist.	-4549 Sep 10 j 04:43	13°16'10	47.97903 AU
retrograde	-4557 Jun 11 j 23:28	6°31'10		direct	-4549 Dec 01 j 04:14	12°16'01	
min. Earth dist.	-4557 Sep 02 j 05:41	5°32'01	47.77292 AU				
opposition	-4557 Sep 03 j 09:07	5°30'42	-17°-16'-54	conjunction	-4548 Mar 09 j 07:47	13°43'11	-15°-57'-19
direct	-4557 Nov 23 j 14:45	4°31'07		minimum elong	-4548 Mar 09 j 07:56	13°43'12	15°57'31
				max. Earth dist.	-4548 Mar 10 j 03:01	13°44'17	49.90286 AU
conjunction	-4556 Mar 01 j 07:19	5°58'43	-16°-34'-6				
minimum elong	-4556 Mar 01 j 07:28	5°58'44	16°34'19	retrograde	-4548 May 15 j 09:12	15°	
max. Earth dist.	-4556 Mar 02 j 11:53	6°00'22	49.70514 AU				
retrograde	-4556 Jun 12 j 08:01	7°29'32		opposition	-4548 Jun 20 j 03:04	15°13'12	
opposition	-4556 Sep 03 j 14:08	6°29'06	-17°-13'-13				
min. Earth dist.	-4556 Sep 02 j 12:04	6°30'21	47.81004 AU	min. Earth dist.	-4548 Sep 11 j 04:14	14°13'19	-16°-33'-43
direct	-4556 Nov 23 j 17:39	5°29'33		direct	-4548 Sep 10 j 12:05	14°14'06	47.98620 AU
					-4548 Dec 01 j 10:53	13°14'05	
				conjunction	-4547 Mar 10 j 13:55	14°41'12	-15°-51'-36
conjunction	-4555 Mar 02 j 13:34	6°57'02	-16°-30'-27	minimum elong	-4547 Mar 10 j 14:06	14°41'13	15°51'46
minimum elong	-4555 Mar 02 j 13:42	6°57'03	16°30'39	max. Earth dist.	-4547 Mar 11 j 07:54	14°42'14	49.90832 AU
max. Earth dist.	-4555 Mar 03 j 18:05	6°58'41	49.74114 AU		-4547 Mar 24 j 09:45	15°	
retrograde	-4555 Jun 13 j 13:54	8°27'42		retrograde	-4547 Jun 21 j 06:44	16°11'09	
opposition	-4555 Sep 04 j 18:58	7°27'19	-17°-9'-15	opposition	-4547 Sep 12 j 08:44	15°11'19	-16°-27'-39
min. Earth dist.	-4555 Sep 03 j 18:14	7°28'30	47.84379 AU	min. Earth dist.	-4547 Sep 11 j 17:10	15°12'03	47.98793 AU
direct	-4555 Nov 24 j 22:25	6°27'46			-4547 Sep 22 j 07:44	15°R	
				direct	-4547 Dec 02 j 17:55	14°12'04	
conjunction	-4554 Mar 03 j 19:35	7°55'10	-16°-26'-32		-4546 Feb 10 j 03:50	15°	
minimum elong	-4554 Mar 03 j 19:45	7°55'11	16°26'44				
max. Earth dist.	-4554 Mar 04 j 22:23	7°56'43	49.77418 AU	conjunction	-4546 Mar 11 j 19:50	15°39'09	-15°-45'-39
retrograde	-4554 Jun 14 j 18:40	9°25'41		minimum elong	-4546 Mar 11 j 20:00	15°39'10	15°45'50
opposition	-4554 Sep 05 j 23:47	8°25'22	-17°-4'-59	max. Earth dist.	-4546 Mar 12 j 11:14	15°40'02	49.90850 AU
min. Earth dist.	-4554 Sep 04 j 23:08	8°26'33	47.87473 AU	retrograde	-4546 Jun 22 j 14:51	17°09'01	
direct	-4554 Nov 26 j 03:30	7°25'51		opposition	-4546 Sep 13 j 13:21	16°09'12	-16°-21'-20
				min. Earth dist.	-4546 Sep 12 j 23:38	16°09'51	47.98469 AU
conjunction	-4553 Mar 05 j 01:30	8°53'11	-16°-22'-19	direct	-4546 Dec 03 j 20:47	15°09'57	
minimum elong	-4553 Mar 05 j 01:38	8°53'12	16°22'30				
max. Earth dist.	-4553 Mar 06 j 03:24	8°54'40	49.80435 AU	conjunction	-4545 Mar 13 j 01:49	16°36'59	-15°-39'-28
retrograde	-4553 Jun 15 j 22:00	10°23'36		minimum elong	-4545 Mar 13 j 02:01	16°37'00	15°39'39
min. Earth dist.	-4553 Sep 06 j 05:54	9°24'26	47.90275 AU	max. Earth dist.	-4545 Mar 13 j 16:56	16°37'51	49.90390 AU
opposition	-4553 Sep 07 j 04:42	9°23'20	-17°00'-26	retrograde	-4545 Jun 23 j 21:39	18°06'46	
direct	-4553 Nov 27 j 10:59	8°23'52		opposition	-4545 Sep 14 j 17:54	17°06'57	-16°-14'-47
				min. Earth dist.	-4545 Sep 14 j 05:40	17°07'32	47.97677 AU
conjunction	-4552 Mar 05 j 07:37	9°51'08	-16°-17'-50	direct	-4545 Dec 05 j 00:13	16°07'41	
minimum elong	-4552 Mar 05 j 07:47	9°51'09	16°18'02				
max. Earth dist.	-4552 Mar 06 j 08:59	9°52'36	49.83174 AU	conjunction	-4544 Mar 13 j 07:45	17°34'42	-15°-33'-2
retrograde	-4552 Jun 16 j 03:17	11°21'27		minimum elong	-4544 Mar 13 j 07:55	17°34'42	15°33'13



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 23

Attention, astronomical year style is used: The year -4544 in astronomical counting style is the year 4545 BCE in historical counting style.

max. Earth dist.	-4544 Mar 13 j 20:41	17° $\approx$ 35'26	49.89506 AU	min. Earth dist.	-4536 Sep 22 j 08:21	25° $\approx$ 44'29	47.74379 AU
retrograde	-4544 Jun 24 j 03:38	19° $\approx$ 04'22		direct	-4536 Dec 12 j 21:56	24° $\approx$ 45'03	
opposition	-4544 Sep 14 j 22:13	18° $\approx$ 04'35	-16°-7'-59				
min. Earth dist.	-4544 Sep 14 j 10:31	18° $\approx$ 05'08	47.96493 AU	conjunction	-4535 Mar 22 j 13:16	26° $\approx$ 12'14	-14°-23'-49
direct	-4544 Dec 05 j 03:55	17° $\approx$ 05'17		minimum elong	-4535 Mar 22 j 13:28	26° $\approx$ 12'15	14°23'58
				max. Earth dist.	-4535 Mar 22 j 14:43	26° $\approx$ 12'19	49.65502 AU
conjunction	-4543 Mar 14 j 13:41	18° $\approx$ 32'16	-15°-26'-22	retrograde	-4535 Jul 03 j 01:35	27° $\approx$ 41'42	
minimum elong	-4543 Mar 14 j 13:53	18° $\approx$ 32'17	15°26'32	opposition	-4535 Sep 23 j 14:19	26° $\approx$ 42'04	-14°-55'-2
max. Earth dist.	-4543 Mar 15 j 01:35	18° $\approx$ 32'57	49.88239 AU	min. Earth dist.	-4535 Sep 23 j 14:29	26° $\approx$ 42'03	47.69555 AU
retrograde	-4543 Jun 25 j 05:25	20° $\approx$ 01'53		direct	-4535 Dec 14 j 01:42	25° $\approx$ 42'39	
opposition	-4543 Sep 16 j 02:47	19° $\approx$ 02'05	-16°00'-55				
min. Earth dist.	-4543 Sep 15 j 17:03	19° $\approx$ 02'33	47.94951 AU	conjunction	-4534 Mar 23 j 19:07	27° $\approx$ 09'54	-14°-14'-57
direct	-4543 Dec 06 j 11:59	18° $\approx$ 02'47		minimum elong	-4534 Mar 23 j 19:20	27° $\approx$ 09'54	14°15'05
				max. Earth dist.	-4534 Mar 23 j 18:10	27° $\approx$ 09'50	49.60560 AU
conjunction	-4542 Mar 15 j 19:26	19° $\approx$ 29'44	-15°-19'-26	retrograde	-4534 Jul 04 j 08:54	28° $\approx$ 39'21	
minimum elong	-4542 Mar 15 j 19:37	19° $\approx$ 29'45	15°19'36	opposition	-4534 Sep 24 j 18:46	27° $\approx$ 39'42	-14°-45'-43
max. Earth dist.	-4542 Mar 16 j 06:44	19° $\approx$ 30'23	49.86653 AU	min. Earth dist.	-4534 Sep 24 j 19:43	27° $\approx$ 39'39	47.64224 AU
retrograde	-4542 Jun 26 j 08:15	20° $\approx$ 59'17		direct	-4534 Dec 15 j 04:39	26° $\approx$ 40'15	
opposition	-4542 Sep 17 j 07:11	19° $\approx$ 59'31	-15°-53'-35				
min. Earth dist.	-4542 Sep 16 j 21:34	19° $\approx$ 59'58	47.93092 AU	conjunction	-4533 Mar 25 j 01:12	28° $\approx$ 07'32	-14°-5'-51
direct	-4542 Dec 07 j 19:14	19° $\approx$ 00'11		minimum elong	-4533 Mar 25 j 01:24	28° $\approx$ 07'33	14°06'00
				max. Earth dist.	-4533 Mar 24 j 22:53	28° $\approx$ 07'24	49.55118 AU
conjunction	-4541 Mar 17 j 01:13	20° $\approx$ 27'09	-15°-12'-14	retrograde	-4533 Jul 05 j 11:37	29° $\approx$ 36'59	
minimum elong	-4541 Mar 17 j 01:26	20° $\approx$ 27'09	15°12'25	opposition	-4533 Sep 25 j 23:13	28° $\approx$ 37'19	-14°-36'-10
max. Earth dist.	-4541 Mar 17 j 10:29	20° $\approx$ 27'40	49.84759 AU	min. Earth dist.	-4533 Sep 26 j 02:27	28° $\approx$ 37'10	47.58423 AU
retrograde	-4541 Jun 27 j 15:28	21° $\approx$ 56'39		direct	-4533 Dec 16 j 11:55	27° $\approx$ 37'48	
opposition	-4541 Sep 18 j 11:36	20° $\approx$ 56'54	-15°-45'-59				
min. Earth dist.	-4541 Sep 18 j 03:30	20° $\approx$ 57'17	47.90939 AU	conjunction	-4532 Mar 25 j 07:19	29° $\approx$ 05'09	-13°-56'-30
direct	-4541 Dec 08 j 22:12	19° $\approx$ 57'34		minimum elong	-4532 Mar 25 j 07:33	29° $\approx$ 05'10	13°56'39
				max. Earth dist.	-4532 Mar 25 j 04:08	29° $\approx$ 04'58	49.49253 AU
conjunction	-4540 Mar 17 j 07:14	21° $\approx$ 24'32	-15°-4'-46		-4532 May 07 j 12:28	0° $\approx$	
minimum elong	-4540 Mar 17 j 07:25	21° $\approx$ 24'32	15°04'56	retrograde	-4532 Jul 05 j 14:14	0° $\approx$ 34'37	
max. Earth dist.	-4540 Mar 17 j 16:18	21° $\approx$ 25'02	49.82567 AU		-4532 Sep 03 j 12:59	30° $\approx$	
retrograde	-4540 Jun 27 j 21:32	22° $\approx$ 54'00		opposition	-4532 Sep 26 j 03:34	29° $\approx$ 34'55	-14°-26'-22
opposition	-4540 Sep 18 j 16:03	21° $\approx$ 54'17	-15°-38'-6	min. Earth dist.	-4532 Sep 26 j 07:08	29° $\approx$ 34'45	47.52216 AU
min. Earth dist.	-4540 Sep 18 j 09:02	21° $\approx$ 54'37	47.88458 AU	direct	-4532 Dec 16 j 19:31	28° $\approx$ 35'21	
direct	-4540 Dec 09 j 02:34	20° $\approx$ 54'57			-4531 Mar 24 j 12:39	0° $\approx$	
conjunction	-4539 Mar 18 j 13:03	22° $\approx$ 21'56	-14°-57'-3	conjunction	-4531 Mar 26 j 13:13	0° $\approx$ 02'46	-13°-46'-55
minimum elong	-4539 Mar 18 j 13:15	22° $\approx$ 21'57	14°57'14	minimum elong	-4531 Mar 26 j 13:25	0° $\approx$ 02'46	13°47'03
max. Earth dist.	-4539 Mar 18 j 20:09	22° $\approx$ 22'20	49.80045 AU	max. Earth dist.	-4531 Mar 26 j 07:48	0° $\approx$ 02'27	49.43000 AU
retrograde	-4539 Jun 29 j 04:23	23° $\approx$ 51'23		retrograde	-4531 Jul 06 j 21:03	1° $\approx$ 32'15	
opposition	-4539 Sep 19 j 20:22	22° $\approx$ 51'42	-15°-29'-58	opposition	-4531 Sep 27 j 08:01	0° $\approx$ 32'32	-14°-16'-18
min. Earth dist.	-4539 Sep 19 j 14:00	22° $\approx$ 52'00	47.85628 AU	min. Earth dist.	-4531 Sep 27 j 13:13	0° $\approx$ 32'17	47.45664 AU
direct	-4539 Dec 10 j 05:36	21° $\approx$ 52'22			-4531 Oct 27 j 06:25	30° $\approx$	
				direct	-4531 Dec 17 j 22:54	29° $\approx$ 32'54	
conjunction	-4538 Mar 19 j 18:59	23° $\approx$ 19'25	-14°-49'-6		-4530 Feb 07 j 01:57	0° $\approx$	
minimum elong	-4538 Mar 19 j 19:11	23° $\approx$ 19'26	14°49'15				
max. Earth dist.	-4538 Mar 20 j 00:56	23° $\approx$ 19'45	49.77134 AU	conjunction	-4530 Mar 27 j 19:18	1° $\approx$ 00'24	-13°-37'-4
retrograde	-4538 Jun 30 j 08:56	24° $\approx$ 48'52		minimum elong	-4530 Mar 27 j 19:32	1° $\approx$ 00'24	13°37'13
opposition	-4538 Sep 21 j 00:52	23° $\approx$ 49'12	-15°-21'-35	max. Earth dist.	-4530 Mar 27 j 13:48	1° $\approx$ 00'05	49.36430 AU
min. Earth dist.	-4538 Sep 20 j 20:46	23° $\approx$ 49'24	47.82381 AU	retrograde	-4530 Jul 08 j 02:46	2° $\approx$ 29'56	
direct	-4538 Dec 11 j 11:07	22° $\approx$ 49'52		opposition	-4530 Sep 28 j 12:26	1° $\approx$ 30'11	-14°-5'-58
				min. Earth dist.	-4530 Sep 28 j 18:31	1° $\approx$ 29'53	47.38803 AU
conjunction	-4537 Mar 21 j 00:58	24° $\approx$ 16'58	-14°-40'-54	direct	-4530 Dec 19 j 03:24	0° $\approx$ 30'30	
minimum elong	-4537 Mar 21 j 01:10	24° $\approx$ 16'58	14°41'03				
max. Earth dist.	-4537 Mar 21 j 05:47	24° $\approx$ 17'14	49.73786 AU	conjunction	-4529 Mar 29 j 01:12	1° $\approx$ 58'06	-13°-26'-58
retrograde	-4537 Jul 01 j 12:13	25° $\approx$ 46'25		minimum elong	-4529 Mar 29 j 01:25	1° $\approx$ 58'06	13°27'05
opposition	-4537 Sep 22 j 05:17	24° $\approx$ 46'47	-15°-12'-58	max. Earth dist.	-4529 Mar 28 j 17:51	1° $\approx$ 57'41	49.29581 AU
min. Earth dist.	-4537 Sep 22 j 01:46	24° $\approx$ 46'57	47.78646 AU	retrograde	-4529 Jul 09 j 10:24	3° $\approx$ 27'40	
direct	-4537 Dec 12 j 18:01	23° $\approx$ 47'26		opposition	-4529 Sep 29 j 16:54	2° $\approx$ 27'55	-13°-55'-21
				min. Earth dist.	-4529 Sep 29 j 23:26	2° $\approx$ 27'36	47.31668 AU
conjunction	-4536 Mar 21 j 07:03	25° $\approx$ 14'35	-14°-32'-28	direct	-4529 Dec 20 j 05:57	1° $\approx$ 28'11	
minimum elong	-4536 Mar 21 j 07:15	25° $\approx$ 14'35	14°32'36				
max. Earth dist.	-4536 Mar 21 j 09:10	25° $\approx$ 14'42	49.69915 AU	conjunction	-4528 Mar 29 j 07:23	2° $\approx$ 55'54	-13°-16'-36
retrograde	-4536 Jul 01 j 18:58	26° $\approx$ 44'02		minimum elong	-4528 Mar 29 j 07:37	2° $\approx$ 55'55	13°16'44
opposition	-4536 Sep 22 j 09:46	25° $\approx$ 44'25	-15°-4'-6	max. Earth dist.	-4528 Mar 28 j 23:06	2° $\approx$ 55'26	49.22441 AU



# Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 24

Attention, astronomical year style is used: The year -4528 in astronomical counting style is the year 4529 BCE in historical counting style.

retrograde	-4528 Jul 09 j 15:23	4° <del>1</del> 25'33		direct	-4520 Dec 28 j 07:17	10° <del>1</del> 14'02	
opposition	-4528 Sep 29 j 21:25	3° <del>1</del> 25'47	-13°-44'-29				
min. Earth dist.	-4528 Sep 30 j 05:53	3° <del>1</del> 25'22	47.24240 AU	conjunction	-4519 Apr 07 j 17:32	11° <del>1</del> 43'03	-11°-32'-12
direct	-4528 Dec 20 j 11:36	2° <del>1</del> 26'01		minimum elong	-4519 Apr 07 j 17:45	11° <del>1</del> 43'03	11°32'17
				max. Earth dist.	-4519 Apr 06 j 19:46	11° <del>1</del> 41'48	48.39798 AU
conjunction	-4527 Mar 30 j 13:35	3° <del>1</del> 53'52	-13°-5'-58	retrograde	-4519 Jul 18 j 19:30	13° <del>1</del> 13'33	
minimum elong	-4527 Mar 30 j 13:48	3° <del>1</del> 53'53	13°06'05	opposition	-4519 Oct 08 j 16:14	12° <del>1</del> 13'22	-11°-55'-10
max. Earth dist.	-4527 Mar 30 j 04:31	3° <del>1</del> 53'21	49.15018 AU	min. Earth dist.	-4519 Oct 09 j 11:42	12° <del>1</del> 12'26	46.38283 AU
retrograde	-4527 Jul 10 j 18:27	5° <del>1</del> 23'36		direct	-4519 Dec 29 j 10:07	11° <del>1</del> 12'53	
opposition	-4527 Oct 01 j 01:55	4° <del>1</del> 23'50	-13°-33'-20	max. Earth dist.	-4518 Apr 08 j 01:28	12° <del>1</del> 40'47	48.28504 AU
min. Earth dist.	-4527 Oct 01 j 10:30	4° <del>1</del> 23'25	47.16496 AU				
direct	-4527 Dec 21 j 18:40	3° <del>1</del> 24'02		conjunction	-4518 Apr 09 j 00:06	12° <del>1</del> 42'05	-11°-19'-22
				minimum elong	-4518 Apr 09 j 00:19	12° <del>1</del> 42'06	11°19'27
conjunction	-4526 Mar 31 j 19:36	4° <del>1</del> 52'01	-12°-55'-5	retrograde	-4518 Jul 20 j 01:55	14° <del>1</del> 12'43	
minimum elong	-4526 Mar 31 j 19:49	4° <del>1</del> 52'02	12°55'13	opposition	-4518 Oct 09 j 21:22	13° <del>1</del> 12'27	-11°-41'-43
max. Earth dist.	-4526 Mar 31 j 08:24	4° <del>1</del> 51'23	49.07244 AU	min. Earth dist.	-4518 Oct 10 j 18:35	13° <del>1</del> 11'26	46.26695 AU
retrograde	-4526 Jul 12 j 00:22	6° <del>1</del> 21'51		direct	-4518 Dec 30 j 15:40	12° <del>1</del> 11'52	
opposition	-4526 Oct 02 j 06:36	5° <del>1</del> 22'05	-13°-21'-55	max. Earth dist.	-4517 Apr 09 j 07:33	13° <del>1</del> 39'56	48.16942 AU
min. Earth dist.	-4526 Oct 02 j 17:09	5° <del>1</del> 21'34	47.08382 AU				
direct	-4526 Dec 22 j 23:25	4° <del>1</del> 22'15		conjunction	-4517 Apr 10 j 06:54	13° <del>1</del> 41'17	-11°-6'-15
				minimum elong	-4517 Apr 10 j 07:08	13° <del>1</del> 41'17	11°06'21
conjunction	-4525 Apr 02 j 02:05	5° <del>1</del> 50'23	-12°-43'-57	retrograde	-4517 Jul 21 j 06:21	15° <del>1</del> 12'03	
minimum elong	-4525 Apr 02 j 02:18	5° <del>1</del> 50'24	12°44'04	opposition	-4517 Oct 11 j 02:19	14° <del>1</del> 11'44	-11°-28'00
max. Earth dist.	-4525 Apr 01 j 14:28	5° <del>1</del> 49'43	48.99062 AU	min. Earth dist.	-4517 Oct 11 j 23:30	14° <del>1</del> 10'42	46.14839 AU
retrograde	-4525 Jul 13 j 07:28	7° <del>1</del> 20'19		direct	-4517 Dec 31 j 22:44	13° <del>1</del> 11'03	
opposition	-4525 Oct 03 j 11:12	6° <del>1</del> 20'31	-13°-10'-16				
min. Earth dist.	-4525 Oct 03 j 23:06	6° <del>1</del> 19'57	46.99813 AU	conjunction	-4516 Apr 10 j 13:47	14° <del>1</del> 40'40	-10°-52'-53
direct	-4525 Dec 24 j 03:14	5° <del>1</del> 20'38		minimum elong	-4516 Apr 10 j 13:59	14° <del>1</del> 40'41	10°52'58
				max. Earth dist.	-4516 Apr 09 j 12:24	14° <del>1</del> 39'12	48.05107 AU
conjunction	-4524 Apr 02 j 08:33	6° <del>1</del> 48'55	-12°-32'-35	retrograde	-4516 Jul 21 j 12:14	16° <del>1</del> 11'38	
minimum elong	-4524 Apr 02 j 08:46	6° <del>1</del> 48'56	12°32'43	opposition	-4516 Oct 11 j 07:37	15° <del>1</del> 11'15	-11°-13'-59
max. Earth dist.	-4524 Apr 01 j 18:21	6° <del>1</del> 48'07	48.90405 AU	min. Earth dist.	-4516 Oct 12 j 06:33	15° <del>1</del> 10'08	46.02719 AU
retrograde	-4524 Jul 13 j 16:44	8° <del>1</del> 18'57		direct	-4515 Jan 01 j 04:20	14° <del>1</del> 10'30	
opposition	-4524 Oct 03 j 15:57	7° <del>1</del> 19'08	-12°-58'-22				
min. Earth dist.	-4524 Oct 04 j 04:52	7° <del>1</del> 18'31	46.90749 AU	conjunction	-4515 Apr 11 j 20:46	15° <del>1</del> 40'21	-10°-39'-15
direct	-4524 Dec 24 j 05:06	6° <del>1</del> 19'10		minimum elong	-4515 Apr 11 j 20:59	15° <del>1</del> 40'22	10°39'20
				max. Earth dist.	-4515 Apr 10 j 19:21	15° <del>1</del> 38'53	47.92995 AU
conjunction	-4523 Apr 03 j 15:05	7° <del>1</del> 47'37	-12°-20'-59	retrograde	-4515 Jul 22 j 18:37	17° <del>1</del> 11'31	
minimum elong	-4523 Apr 03 j 15:18	7° <del>1</del> 47'37	12°21'05	opposition	-4515 Oct 12 j 12:52	16° <del>1</del> 11'06	-10°-59'-42
max. Earth dist.	-4523 Apr 02 j 23:25	7° <del>1</del> 46'43	48.81221 AU	min. Earth dist.	-4515 Oct 13 j 12:36	16° <del>1</del> 09'56	45.90291 AU
retrograde	-4523 Jul 14 j 21:26	9° <del>1</del> 17'44		direct	-4514 Jan 02 j 09:40	15° <del>1</del> 10'16	
opposition	-4523 Oct 04 j 20:50	8° <del>1</del> 17'51	-12°-46'-14	max. Earth dist.	-4514 Apr 12 j 00:11	16° <del>1</del> 38'47	47.80567 AU
min. Earth dist.	-4523 Oct 05 j 12:04	8° <del>1</del> 17'07	46.81153 AU				
direct	-4523 Dec 25 j 11:21	7° <del>1</del> 17'49		conjunction	-4514 Apr 13 j 03:47	16° <del>1</del> 40'23	-10°-25'-20
				minimum elong	-4514 Apr 13 j 03:59	16° <del>1</del> 40'24	10°25'25
conjunction	-4522 Apr 04 j 21:40	8° <del>1</del> 46'23	-12°-9'-9	retrograde	-4514 Jul 24 j 04:46	18° <del>1</del> 11'45	
minimum elong	-4522 Apr 04 j 21:52	8° <del>1</del> 46'24	12°09'16	opposition	-4514 Oct 13 j 18:08	17° <del>1</del> 11'18	-10°-45'-8
max. Earth dist.	-4522 Apr 04 j 04:48	8° <del>1</del> 45'25	48.71536 AU	min. Earth dist.	-4514 Oct 14 j 18:47	17° <del>1</del> 10'06	45.77525 AU
retrograde	-4522 Jul 16 j 00:15	10° <del>1</del> 16'35		direct	-4513 Jan 03 j 11:36	16° <del>1</del> 10'23	
opposition	-4522 Oct 06 j 01:34	9° <del>1</del> 16'39	-12°-33'-51	max. Earth dist.	-4513 Apr 13 j 06:23	17° <del>1</del> 39'08	47.67739 AU
min. Earth dist.	-4522 Oct 06 j 17:19	9° <del>1</del> 15'53	46.71063 AU				
direct	-4522 Dec 26 j 19:45	8° <del>1</del> 16'30		conjunction	-4513 Apr 14 j 11:07	17° <del>1</del> 40'48	-10°-11'-10
max. Earth dist.	-4521 Apr 05 j 08:48	9° <del>1</del> 44'07	48.61366 AU	minimum elong	-4513 Apr 14 j 11:20	17° <del>1</del> 40'49	10°11'15
				retrograde	-4513 Jul 25 j 12:07	19° <del>1</del> 12'24	
conjunction	-4521 Apr 06 j 04:10	9° <del>1</del> 45'13	-11°-57'-5	opposition	-4513 Oct 14 j 23:44	18° <del>1</del> 11'53	-10°-30'-18
minimum elong	-4521 Apr 06 j 04:23	9° <del>1</del> 45'14	11°57'11	min. Earth dist.	-4513 Oct 16 j 02:38	18° <del>1</del> 10'35	45.64319 AU
retrograde	-4521 Jul 17 j 05:46	11° <del>1</del> 15'31		direct	-4512 Jan 04 j 16:49	17° <del>1</del> 10'53	
opposition	-4521 Oct 07 j 06:29	10° <del>1</del> 15'30	-12°-21'-13				
min. Earth dist.	-4521 Oct 08 j 00:14	10° <del>1</del> 14'38	46.60520 AU	conjunction	-4512 Apr 14 j 18:38	18° <del>1</del> 41'35	-9°-56'-44
direct	-4521 Dec 28 j 01:26	9° <del>1</del> 15'14		minimum elong	-4512 Apr 14 j 18:51	18° <del>1</del> 41'36	9°56'48
				max. Earth dist.	-4512 Apr 13 j 12:34	18° <del>1</del> 39'50	47.54453 AU
conjunction	-4520 Apr 06 j 10:56	10° <del>1</del> 44'06	-11°-44'-46	retrograde	-4512 Jul 25 j 17:00	20° <del>1</del> 13'24	
minimum elong	-4520 Apr 06 j 11:08	10° <del>1</del> 44'07	11°44'52	opposition	-4512 Oct 15 j 05:15	19° <del>1</del> 12'50	-10°-15'-12
max. Earth dist.	-4520 Apr 05 j 15:11	10° <del>1</del> 42'58	48.50765 AU	min. Earth dist.	-4512 Oct 16 j 08:44	19° <del>1</del> 11'29	45.50623 AU
retrograde	-4520 Jul 17 j 10:58	12° <del>1</del> 14'30		direct	-4511 Jan 05 j 01:35	18° <del>1</del> 11'43	
opposition	-4520 Oct 07 j 11:17	11° <del>1</del> 14'24	-12°-8'-19	max. Earth dist.	-4511 Apr 14 j 17:28	19° <del>1</del> 40'48	47.40650 AU
min. Earth dist.	-4520 Oct 08 j 06:04	11° <del>1</del> 13'29	46.49566 AU				



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 25

Attention, astronomical year style is used: The year -4511 in astronomical counting style is the year 4512 BCE in historical counting style.

conjunction	-4511 Apr 16 j 02:13	19° <del>✕</del> 42'43	-9°-42'-4	opposition	-4503 Oct 24 j 13:00	28° <del>✕</del> 33'38	-7°-46'-57
minimum elong	-4511 Apr 16 j 02:25	19° <del>✕</del> 42'44	9°42'09	min. Earth dist.	-4503 Oct 26 j 03:48	28° <del>✕</del> 31'42	44.08454 AU
retrograde	-4511 Jul 26 j 22:54	21° <del>✕</del> 14'45		direct	-4502 Jan 14 j 09:53	27° <del>✕</del> 31'06	
opposition	-4511 Oct 16 j 11:08	20° <del>✕</del> 14'06	-9°-59'-51	max. Earth dist.	-4502 Apr 24 j 07:31	29° <del>✕</del> 02'21	45.98212 AU
min. Earth dist.	-4511 Oct 17 j 16:51	20° <del>✕</del> 12'39	45.36414 AU				
direct	-4510 Jan 06 j 08:37	19° <del>✕</del> 12'52		conjunction	-4502 Apr 26 j 03:08	29° <del>✕</del> 04'58	-7°-18'-7
max. Earth dist.	-4510 Apr 16 j 00:34	20° <del>✕</del> 42'11	47.26336 AU	minimum elong	-4502 Apr 26 j 03:18	29° <del>✕</del> 04'59	7°18'10
					-4502 Jun 05 j 17:20	0° <del>Υ</del>	
conjunction	-4510 Apr 17 j 09:51	20° <del>✕</del> 44'08	-9°-27'-9	retrograde	-4502 Aug 05 j 21:05	0° <del>Υ</del> 39'23	
minimum elong	-4510 Apr 17 j 10:04	20° <del>✕</del> 44'09	9°27'12		-4502 Oct 06 j 19:36	30° <del>℞</del> <del>✕</del>	
retrograde	-4510 Jul 28 j 04:47	22° <del>✕</del> 16'24		opposition	-4502 Oct 25 j 19:48	29° <del>✕</del> 37'38	-7°-29'00
opposition	-4510 Oct 17 j 17:01	21° <del>✕</del> 15'39	-9°-44'-14	min. Earth dist.	-4502 Oct 27 j 10:54	29° <del>✕</del> 35'40	43.91134 AU
min. Earth dist.	-4510 Oct 18 j 23:46	21° <del>✕</del> 14'08	45.21691 AU	direct	-4501 Jan 15 j 17:48	28° <del>✕</del> 34'57	
direct	-4509 Jan 07 j 15:32	20° <del>✕</del> 14'17			-4501 Apr 21 j 02:48	0° <del>Υ</del>	
max. Earth dist.	-4509 Apr 17 j 05:50	21° <del>✕</del> 43'42	47.11534 AU	max. Earth dist.	-4501 Apr 25 j 14:16	0° <del>Υ</del> 06'28	45.80837 AU
conjunction	-4509 Apr 18 j 17:37	21° <del>✕</del> 45'49	-9°-11'-58	conjunction	-4501 Apr 27 j 12:04	0° <del>Υ</del> 09'14	-7°00'-44
minimum elong	-4509 Apr 18 j 17:48	21° <del>✕</del> 45'49	9°12'02	minimum elong	-4501 Apr 27 j 12:14	0° <del>Υ</del> 09'15	7°00'45
retrograde	-4509 Jul 29 j 14:29	23° <del>✕</del> 18'18		retrograde	-4501 Aug 07 j 05:06	1° <del>Υ</del> 44'00	
opposition	-4509 Oct 18 j 22:50	22° <del>✕</del> 17'26	-9°-28'-21	opposition	-4501 Oct 27 j 02:51	0° <del>Υ</del> 42'07	-7°-10'-45
min. Earth dist.	-4509 Oct 20 j 06:53	22° <del>✕</del> 15'51	45.06512 AU	min. Earth dist.	-4501 Oct 28 j 20:12	0° <del>Υ</del> 40'02	43.73435 AU
direct	-4508 Jan 08 j 19:12	21° <del>✕</del> 15'54			-4501 Dec 04 j 07:39	30° <del>℞</del> <del>✕</del>	
max. Earth dist.	-4508 Apr 17 j 12:43	22° <del>✕</del> 45'33	46.96281 AU	direct	-4500 Jan 17 j 02:05	29° <del>✕</del> 39'16	
					-4500 Feb 29 j 13:41	0° <del>Υ</del>	
conjunction	-4508 Apr 19 j 01:38	22° <del>✕</del> 47'44	-8°-56'-32	max. Earth dist.	-4500 Apr 25 j 23:03	1° <del>Υ</del> 11'11	45.63051 AU
minimum elong	-4508 Apr 19 j 01:50	22° <del>✕</del> 47'44	8°56'36				
retrograde	-4508 Jul 29 j 23:11	24° <del>✕</del> 20'27		conjunction	-4500 Apr 27 j 21:20	1° <del>Υ</del> 13'59	-6°-43'-4
opposition	-4508 Oct 19 j 04:58	23° <del>✕</del> 19'27	-9°-12'-11	minimum elong	-4500 Apr 27 j 21:30	1° <del>Υ</del> 14'00	6°43'06
min. Earth dist.	-4508 Oct 20 j 14:54	23° <del>✕</del> 17'46	44.90912 AU	retrograde	-4500 Aug 07 j 11:41	2° <del>Υ</del> 49'06	
direct	-4507 Jan 09 j 00:54	22° <del>✕</del> 17'44		opposition	-4500 Oct 27 j 10:09	1° <del>Υ</del> 47'05	-6°-52'-13
max. Earth dist.	-4507 Apr 18 j 19:32	23° <del>✕</del> 47'38	46.80651 AU	min. Earth dist.	-4500 Oct 29 j 04:16	1° <del>Υ</del> 44'58	43.55289 AU
				direct	-4499 Jan 17 j 11:25	0° <del>Υ</del> 44'03	
conjunction	-4507 Apr 20 j 09:29	23° <del>✕</del> 49'52	-8°-40'-50	max. Earth dist.	-4499 Apr 27 j 05:38	2° <del>Υ</del> 16'13	45.44803 AU
minimum elong	-4507 Apr 20 j 09:40	23° <del>✕</del> 49'53	8°40'53				
retrograde	-4507 Jul 31 j 06:41	25° <del>✕</del> 22'49		conjunction	-4499 Apr 29 j 06:29	2° <del>Υ</del> 19'12	-6°-25'-7
opposition	-4507 Oct 20 j 11:02	24° <del>✕</del> 21'41	-8°-55'-44	minimum elong	-4499 Apr 29 j 06:39	2° <del>Υ</del> 19'12	6°25'08
min. Earth dist.	-4507 Oct 21 j 21:04	24° <del>✕</del> 20'00	44.74964 AU	retrograde	-4499 Aug 08 j 21:27	3° <del>Υ</del> 54'42	
direct	-4506 Jan 10 j 08:17	23° <del>✕</del> 19'48		opposition	-4499 Oct 28 j 17:37	2° <del>Υ</del> 52'32	-6°-33'-24
max. Earth dist.	-4506 Apr 20 j 01:37	24° <del>✕</del> 49'53	46.64689 AU	min. Earth dist.	-4499 Oct 30 j 13:16	2° <del>Υ</del> 50'19	43.36686 AU
				direct	-4498 Jan 18 j 17:28	1° <del>Υ</del> 49'18	
conjunction	-4506 Apr 21 j 17:29	24° <del>✕</del> 52'15	-8°-24'-52	max. Earth dist.	-4498 Apr 28 j 14:13	3° <del>Υ</del> 21'50	45.26082 AU
minimum elong	-4506 Apr 21 j 17:41	24° <del>✕</del> 52'15	8°24'55				
retrograde	-4506 Aug 01 j 12:11	26° <del>✕</del> 25'27		conjunction	-4498 Apr 30 j 16:06	3° <del>Υ</del> 24'52	-6°-6'-54
opposition	-4506 Oct 21 j 17:18	25° <del>✕</del> 24'10	-8°-38'-59	minimum elong	-4498 Apr 30 j 16:15	3° <del>Υ</del> 24'53	6°06'56
min. Earth dist.	-4506 Oct 23 j 05:16	25° <del>✕</del> 22'23	44.58724 AU	retrograde	-4498 Aug 10 j 07:17	5° <del>Υ</del> 00'44	
direct	-4505 Jan 11 j 16:03	24° <del>✕</del> 22'07		opposition	-4498 Oct 30 j 01:14	3° <del>Υ</del> 58'24	-6°-14'-17
max. Earth dist.	-4505 Apr 21 j 09:48	25° <del>✕</del> 52'30	46.48456 AU	min. Earth dist.	-4498 Oct 31 j 22:41	3° <del>Υ</del> 56'06	43.17618 AU
				direct	-4497 Jan 20 j 00:14	2° <del>Υ</del> 54'58	
conjunction	-4505 Apr 23 j 01:45	25° <del>✕</del> 54'53	-8°-8'-36	max. Earth dist.	-4497 Apr 29 j 22:19	4° <del>Υ</del> 27'50	45.06928 AU
minimum elong	-4505 Apr 23 j 01:56	25° <del>✕</del> 54'54	8°08'38				
retrograde	-4505 Aug 02 j 17:03	27° <del>✕</del> 28'22		conjunction	-4497 May 02 j 01:47	4° <del>Υ</del> 30'59	-5°-48'-25
opposition	-4505 Oct 22 j 23:43	26° <del>✕</del> 26'58	-8°-21'-56	minimum elong	-4497 May 02 j 01:56	4° <del>Υ</del> 30'59	5°48'26
min. Earth dist.	-4505 Oct 24 j 12:05	26° <del>✕</del> 25'09	44.42215 AU	retrograde	-4497 Aug 11 j 18:38	6° <del>Υ</del> 07'13	
direct	-4504 Jan 13 j 00:53	25° <del>✕</del> 24'45		opposition	-4497 Oct 31 j 08:57	5° <del>Υ</del> 04'42	-5°-54'-52
max. Earth dist.	-4504 Apr 21 j 15:58	26° <del>✕</del> 55'20	46.31970 AU	min. Earth dist.	-4497 Nov 02 j 06:50	5° <del>Υ</del> 02'22	42.98134 AU
				direct	-4496 Jan 21 j 07:35	4° <del>Υ</del> 01'02	
conjunction	-4504 Apr 23 j 10:02	26° <del>✕</del> 57'51	-7°-52'-4	max. Earth dist.	-4496 Apr 30 j 06:16	5° <del>Υ</del> 34'14	44.87358 AU
minimum elong	-4504 Apr 23 j 10:13	26° <del>✕</del> 57'52	7°52'06				
retrograde	-4504 Aug 03 j 03:05	28° <del>✕</del> 31'37		conjunction	-4496 May 02 j 11:41	5° <del>Υ</del> 37'31	-5°-29'-39
opposition	-4504 Oct 23 j 06:12	27° <del>✕</del> 30'06	-8°-4'-35	minimum elong	-4496 May 02 j 11:50	5° <del>Υ</del> 37'32	5°29'40
min. Earth dist.	-4504 Oct 24 j 19:25	27° <del>✕</del> 28'14	44.25469 AU	retrograde	-4496 Aug 12 j 03:06	7° <del>Υ</del> 14'09	
direct	-4503 Jan 13 j 04:45	26° <del>✕</del> 27'43		opposition	-4496 Oct 31 j 16:56	6° <del>Υ</del> 11'27	-5°-35'-9
max. Earth dist.	-4503 Apr 23 j 00:01	27° <del>✕</del> 58'39	46.15227 AU	min. Earth dist.	-4496 Nov 02 j 17:02	6° <del>Υ</del> 08'59	42.78281 AU
				direct	-4495 Jan 21 j 16:35	5° <del>Υ</del> 07'33	
conjunction	-4503 Apr 24 j 18:37	28° <del>✕</del> 01'12	-7°-35'-14	max. Earth dist.	-4495 May 01 j 16:08	6° <del>Υ</del> 41'11	44.67457 AU
minimum elong	-4503 Apr 24 j 18:47	28° <del>✕</del> 01'12	7°35'16				
retrograde	-4503 Aug 04 j 12:17	29° <del>✕</del> 35'17		conjunction	-4495 May 03 j 21:46	6° <del>Υ</del> 44'30	-5°-10'-35



# Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 26

Attention, astronomical year style is used: The year -4495 in astronomical counting style is the year 4496 BCE in historical counting style.

minimum elong	-4495 May 03 j 21:55	6°V44'31	5°10'35	min. Earth dist.	-4487 Nov 13 j 11:11	16°V35'36	40.88760 AU
retrograde	-4495 Aug 13 j 09:31	8°V21'32		direct	-4486 Feb 01 j 01:25	15°V32'34	
opposition	-4495 Nov 02 j 01:03	7°V18'39	-5°-15'-8	max. Earth dist.	-4486 May 12 j 10:00	17°V10'36	42.77437 AU
min. Earth dist.	-4495 Nov 04 j 01:21	7°V16'10	42.58125 AU				
direct	-4494 Jan 23 j 03:47	6°V14'31		conjunction	-4486 May 15 j 02:49	17°V14'48	-2°-5'-57
max. Earth dist.	-4494 May 02 j 23:58	7°V48'29	44.47279 AU	minimum elong	-4486 May 15 j 02:53	17°V14'48	2°05'54
				retrograde	-4486 Aug 24 j 15:37	18°V56'29	
conjunction	-4494 May 05 j 07:46	7°V51'57	-4°-51'-15	opposition	-4486 Nov 12 j 13:34	17°V51'50	-2°00'-46
minimum elong	-4494 May 05 j 07:53	7°V51'58	4°51'14	min. Earth dist.	-4486 Nov 15 j 00:00	17°V48'43	40.66174 AU
retrograde	-4494 Aug 14 j 19:38	9°V29'26		direct	-4485 Feb 02 j 10:41	16°V45'31	
opposition	-4494 Nov 03 j 09:24	8°V26'20	-4°-54'-48	max. Earth dist.	-4485 May 13 j 22:01	18°V24'09	42.54720 AU
min. Earth dist.	-4494 Nov 05 j 10:54	8°V23'47	42.37733 AU				
direct	-4493 Jan 24 j 10:53	7°V21'58		conjunction	-4485 May 16 j 15:36	18°V28'25	-1°-44'00
max. Earth dist.	-4493 May 04 j 10:21	8°V56'26	44.26869 AU	minimum elong	-4485 May 16 j 15:39	18°V28'25	1°43'58
				retrograde	-4485 Aug 26 j 03:50	20°V10'40	
conjunction	-4493 May 06 j 18:18	8°V59'56	-4°-31'-36	opposition	-4485 Nov 14 j 00:13	19°V05'45	-1°-37'-37
minimum elong	-4493 May 06 j 18:26	8°V59'56	4°31'36	min. Earth dist.	-4485 Nov 16 j 10:57	19°V02'37	40.43232 AU
retrograde	-4493 Aug 16 j 05:27	10°V37'51		direct	-4484 Feb 04 j 00:19	17°V59'08	
opposition	-4493 Nov 04 j 17:58	9°V34'34	-4°-34'-9	max. Earth dist.	-4484 May 14 j 08:41	19°V38'16	42.31655 AU
min. Earth dist.	-4493 Nov 06 j 20:34	9°V31'57	42.17130 AU				
direct	-4492 Jan 25 j 18:19	8°V29'58		conjunction	-4484 May 17 j 04:38	19°V42'43	-1°-21'-46
max. Earth dist.	-4492 May 04 j 19:47	10°V04'53	44.06280 AU	minimum elong	-4484 May 17 j 04:40	19°V42'43	1°21'43
				retrograde	-4484 Aug 26 j 16:15	21°V25'33	
conjunction	-4492 May 07 j 04:57	10°V08'28	-4°-11'-40	opposition	-4484 Nov 14 j 11:25	20°V20'22	-1°-14'-10
minimum elong	-4492 May 07 j 05:04	10°V08'29	4°11'40	min. Earth dist.	-4484 Nov 16 j 23:58	20°V17'07	40.19990 AU
retrograde	-4492 Aug 16 j 18:07	11°V46'53		direct	-4483 Feb 04 j 12:31	19°V13'26	
opposition	-4492 Nov 05 j 02:46	10°V43'25	-4°-13'-11	max. Earth dist.	-4483 May 15 j 21:59	20°V53'13	42.08306 AU
min. Earth dist.	-4492 Nov 07 j 05:28	10°V40'47	41.96363 AU				
direct	-4491 Jan 26 j 01:49	9°V38'35		conjunction	-4483 May 18 j 17:51	20°V57'41	0°-59'-15
max. Earth dist.	-4491 May 06 j 05:14	11°V13'59	43.85502 AU	minimum elong	-4483 May 18 j 17:53	20°V57'42	0°59'12
				retrograde	-4483 Aug 28 j 02:57	22°V41'09	
conjunction	-4491 May 08 j 15:44	11°V17'40	-3°-51'-27	opposition	-4483 Nov 15 j 22:51	21°V35'41	0°-50'-24
minimum elong	-4491 May 08 j 15:51	11°V17'40	3°51'27	min. Earth dist.	-4483 Nov 18 j 11:58	21°V32'23	39.96496 AU
retrograde	-4491 Aug 18 j 06:06	12°V56'35		direct	-4482 Feb 06 j 01:31	20°V28'25	
opposition	-4491 Nov 06 j 11:56	11°V52'56	-3°-51'-53	max. Earth dist.	-4482 May 17 j 09:45	22°V08'46	41.84740 AU
min. Earth dist.	-4491 Nov 08 j 16:22	11°V50'12	41.75410 AU				
direct	-4490 Jan 27 j 11:15	10°V47'54		conjunction	-4482 May 20 j 07:20	22°V13'23	0°-36'-27
max. Earth dist.	-4490 May 07 j 16:20	12°V23'52	43.64531 AU	minimum elong	-4482 May 20 j 07:21	22°V13'23	0°36'24
				retrograde	-4482 Aug 29 j 16:30	23°V57'29	
conjunction	-4490 May 10 j 02:56	12°V27'35	-3°-30'-55	opposition	-4482 Nov 17 j 10:26	22°V51'44	0°-26'-20
minimum elong	-4490 May 10 j 03:02	12°V27'35	3°30'55	min. Earth dist.	-4482 Nov 20 j 00:15	22°V48'23	39.72832 AU
retrograde	-4490 Aug 19 j 15:47	14°V07'01		direct	-4481 Feb 07 j 11:36	21°V44'08	
opposition	-4490 Nov 07 j 21:07	13°V03'12	-3°-30'-17	max. Earth dist.	-4481 May 18 j 23:08	23°V25'10	41.61001 AU
min. Earth dist.	-4490 Nov 10 j 01:40	13°V00'27	41.54235 AU				
direct	-4489 Jan 28 j 22:58	11°V57'56		conjunction	-4481 May 21 j 21:22	23°V29'51	0°-13'-24
max. Earth dist.	-4489 May 09 j 01:31	13°V34'22	43.43295 AU	minimum elong	-4481 May 21 j 21:22	23°V29'51	0°13'21
				behind sun begin	-4481 May 21 j 17:47	23°V29'38	
conjunction	-4489 May 11 j 14:25	13°V38'15	-3°-10'-7	behind sun end	-4481 May 22 j 00:58	23°V30'04	
minimum elong	-4489 May 11 j 14:30	13°V38'15	3°10'06	retrograde	-4481 Aug 31 j 06:55	25°V14'38	
retrograde	-4489 Aug 21 j 02:27	15°V18'14		opposition	-4481 Nov 18 j 22:40	24°V08'36	0°-1'-58
opposition	-4489 Nov 09 j 06:45	14°V14'14	-3°-8'-22	min. Earth dist.	-4481 Nov 21 j 13:49	24°V05'10	39.49027 AU
min. Earth dist.	-4489 Nov 11 j 13:07	14°V11'23	41.32775 AU	asc. node	-4481 Dec 18 j 10:50	23°V32'06	
direct	-4488 Jan 30 j 08:04	13°V08'45		direct	-4480 Feb 08 j 22:17	23°V00'41	
max. Earth dist.	-4488 May 09 j 13:00	14°V45'45	43.21722 AU	max. Earth dist.	-4480 May 19 j 12:53	24°V42'25	41.37151 AU
conjunction	-4488 May 12 j 02:21	14°V49'41	-2°-49'-1	conjunction	-4480 May 22 j 11:34	24°V47'10	0°10'00
minimum elong	-4488 May 12 j 02:25	14°V49'41	2°48'58	minimum elong	-4480 May 22 j 11:34	24°V47'10	0°10'06
retrograde	-4488 Aug 21 j 12:17	16°V30'14		behind sun begin	-4480 May 22 j 06:23	24°V46'50	
opposition	-4488 Nov 09 j 16:43	15°V26'02	-2°-46'-9	behind sun end	-4480 May 22 j 16:45	24°V47'29	
min. Earth dist.	-4488 Nov 12 j 00:17	15°V23'06	41.10952 AU	retrograde	-4480 Aug 31 j 22:52	26°V32'39	
direct	-4487 Jan 30 j 18:11	14°V20'18		opposition	-4480 Nov 19 j 11:04	25°V26'21	0°22'41
max. Earth dist.	-4487 May 10 j 23:05	15°V57'48	42.99781 AU	min. Earth dist.	-4480 Nov 22 j 01:53	25°V22'55	39.25131 AU
				direct	-4479 Feb 09 j 10:15	24°V18'06	
conjunction	-4487 May 13 j 14:25	16°V01'53	-2°-27'-37	max. Earth dist.	-4479 May 21 j 01:59	26°V00'33	41.13199 AU
minimum elong	-4487 May 13 j 14:29	16°V01'53	2°27'36				
retrograde	-4487 Aug 23 j 02:27	17°V43'00		conjunction	-4479 May 24 j 02:13	26°V05'26	0°33'35
opposition	-4487 Nov 11 j 02:55	16°V38'35	-2°-23'-37	minimum elong	-4479 May 24 j 02:11	26°V05'26	0°33'40



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 27

Attention, astronomical year style is used: The year -4479 in astronomical counting style is the year 4480 BCE in historical counting style.

retrograde	-4479 Sep 02 j 13:35	27° $\Upsilon$ 51'39		conjunction	-4471 Jun 04 j 15:30	7° $\text{8}$ 12'08	3°51'23
opposition	-4479 Nov 20 j 23:59	26° $\Upsilon$ 45'06	0°47'39	minimum elong	-4471 Jun 04 j 15:22	7° $\text{8}$ 12'07	3°51'31
min. Earth dist.	-4479 Nov 23 j 16:27	26° $\Upsilon$ 41'33	39.01152 AU	retrograde	-4471 Sep 14 j 01:23	9° $\text{8}$ 05'08	
direct	-4478 Feb 10 j 22:51	25° $\Upsilon$ 36'33		opposition	-4471 Dec 01 j 22:55	7° $\text{8}$ 56'09	4°17'10
max. Earth dist.	-4478 May 22 j 17:19	27° $\Upsilon$ 19'50	40.89146 AU	min. Earth dist.	-4471 Dec 04 j 22:37	7° $\text{8}$ 52'02	37.02031 AU
				direct	-4470 Feb 21 j 21:36	6° $\text{8}$ 44'43	
conjunction	-4478 May 25 j 17:14	27° $\Upsilon$ 24'44	0°57'27	max. Earth dist.	-4470 Jun 03 j 01:08	8° $\text{8}$ 34'44	38.88662 AU
minimum elong	-4478 May 25 j 17:12	27° $\Upsilon$ 24'44	0°57'33				
retrograde	-4478 Sep 04 j 02:48	29° $\Upsilon$ 11'44		conjunction	-4470 Jun 06 j 09:59	8° $\text{8}$ 40'36	4°17'05
opposition	-4478 Nov 22 j 13:15	28° $\Upsilon$ 04'56	1°12'54	minimum elong	-4470 Jun 06 j 09:50	8° $\text{8}$ 40'36	4°17'13
min. Earth dist.	-4478 Nov 25 j 05:54	28° $\Upsilon$ 01'21	38.77045 AU	retrograde	-4470 Sep 15 j 20:36	10° $\text{8}$ 34'33	
direct	-4477 Feb 12 j 14:18	26° $\Upsilon$ 56'05		opposition	-4470 Dec 03 j 15:50	9° $\text{8}$ 25'11	4°44'27
max. Earth dist.	-4477 May 24 j 06:44	28° $\Upsilon$ 40'05	40.64931 AU	min. Earth dist.	-4470 Dec 06 j 15:46	9° $\text{8}$ 21'02	36.76376 AU
				direct	-4469 Feb 23 j 12:36	8° $\text{8}$ 13'19	
conjunction	-4477 May 27 j 08:44	28° $\Upsilon$ 45'10	1°21'35	max. Earth dist.	-4469 Jun 04 j 20:04	10° $\text{8}$ 04'20	38.62866 AU
minimum elong	-4477 May 27 j 08:41	28° $\Upsilon$ 45'10	1°21'41				
	-4477 Jul 16 j 06:32	0° $\text{8}$		conjunction	-4469 Jun 08 j 05:13	10° $\text{8}$ 10'16	4°42'57
retrograde	-4477 Sep 05 j 18:47	0° $\text{8}$ 32'58		minimum elong	-4469 Jun 08 j 05:03	10° $\text{8}$ 10'15	4°43'06
	-4477 Oct 28 j 05:37	30° $\text{R}$ $\Upsilon$		retrograde	-4469 Sep 17 j 15:05	12° $\text{8}$ 05'11	
opposition	-4477 Nov 24 j 02:51	29° $\Upsilon$ 25'55	1°38'26	opposition	-4469 Dec 05 j 09:25	10° $\text{8}$ 55'26	5°11'54
min. Earth dist.	-4477 Nov 26 j 20:41	29° $\Upsilon$ 22'16	38.52769 AU	min. Earth dist.	-4469 Dec 08 j 10:29	10° $\text{8}$ 51'12	36.50728 AU
direct	-4476 Feb 14 j 02:15	28° $\Upsilon$ 16'46		direct	-4468 Feb 25 j 04:36	9° $\text{8}$ 43'09	
	-4476 May 23 j 23:01	0° $\text{8}$		max. Earth dist.	-4468 Jun 05 j 15:44	11° $\text{8}$ 35'12	38.37118 AU
max. Earth dist.	-4476 May 24 j 22:29	0° $\text{8}$ 01'37	40.40492 AU				
				conjunction	-4468 Jun 09 j 00:49	11° $\text{8}$ 41'11	5°08'58
conjunction	-4476 May 28 j 00:51	0° $\text{8}$ 06'46	1°45'58	minimum elong	-4468 Jun 09 j 00:38	11° $\text{8}$ 41'10	5°09'06
minimum elong	-4476 May 28 j 00:48	0° $\text{8}$ 06'46	1°46'04	retrograde	-4468 Sep 18 j 12:46	13° $\text{8}$ 37'05	
retrograde	-4476 Sep 06 j 09:51	1° $\text{8}$ 55'25		opposition	-4468 Dec 06 j 03:29	12° $\text{8}$ 26'58	5°39'31
opposition	-4476 Nov 24 j 17:10	0° $\text{8}$ 48'05	2°04'15	min. Earth dist.	-4468 Dec 09 j 03:53	12° $\text{8}$ 22'45	36.25163 AU
min. Earth dist.	-4476 Nov 27 j 12:21	0° $\text{8}$ 44'20	38.28250 AU	direct	-4467 Feb 25 j 22:10	11° $\text{8}$ 14'15	
	-4475 Jan 03 j 10:31	30° $\text{R}$ $\Upsilon$		max. Earth dist.	-4467 Jun 07 j 10:41	13° $\text{8}$ 07'19	38.11443 AU
direct	-4475 Feb 14 j 15:15	29° $\Upsilon$ 38'36					
	-4475 Mar 28 j 09:30	0° $\text{8}$		conjunction	-4467 Jun 10 j 20:50	13° $\text{8}$ 13'25	5°35'07
max. Earth dist.	-4475 May 26 j 13:28	1° $\text{8}$ 24'16	40.15798 AU	minimum elong	-4467 Jun 10 j 20:38	13° $\text{8}$ 13'24	5°35'15
					-4467 Aug 24 j 04:14	15° $\text{8}$	
conjunction	-4475 May 29 j 17:06	1° $\text{8}$ 29'32	2°10'36	retrograde	-4467 Sep 20 j 11:04	15° $\text{8}$ 10'23	
minimum elong	-4475 May 29 j 17:02	1° $\text{8}$ 29'32	2°10'42		-4467 Oct 17 j 20:09	15° $\text{R}$ $\text{8}$	
retrograde	-4475 Sep 08 j 04:16	3° $\text{8}$ 19'02		opposition	-4467 Dec 07 j 22:14	13° $\text{8}$ 59'54	6°07'17
opposition	-4475 Nov 26 j 07:46	2° $\text{8}$ 11'25	2°30'20	min. Earth dist.	-4467 Dec 10 j 23:53	13° $\text{8}$ 55'35	35.99701 AU
min. Earth dist.	-4475 Nov 29 j 03:19	2° $\text{8}$ 07'38	38.03473 AU	direct	-4466 Feb 27 j 15:28	12° $\text{8}$ 46'46	
direct	-4474 Feb 16 j 04:26	1° $\text{8}$ 01'35		max. Earth dist.	-4466 Jun 09 j 08:15	14° $\text{8}$ 41'00	37.85868 AU
max. Earth dist.	-4474 May 28 j 04:44	2° $\text{8}$ 48'03	39.90810 AU				
				conjunction	-4466 Jun 12 j 17:38	14° $\text{8}$ 47'07	6°01'21
conjunction	-4474 May 31 j 10:04	2° $\text{8}$ 53'29	2°35'28	minimum elong	-4466 Jun 12 j 17:26	14° $\text{8}$ 47'06	6°01'29
minimum elong	-4474 May 31 j 09:58	2° $\text{8}$ 53'28	2°35'34		-4466 Jun 19 j 21:21	15° $\text{8}$	
retrograde	-4474 Sep 09 j 23:28	4° $\text{8}$ 43'50		retrograde	-4466 Sep 22 j 07:14	16° $\text{8}$ 45'08	
opposition	-4474 Nov 27 j 22:51	3° $\text{8}$ 35'54	2°56'40	opposition	-4466 Dec 09 j 17:21	15° $\text{8}$ 34'18	6°35'10
min. Earth dist.	-4474 Nov 30 j 20:27	3° $\text{8}$ 31'59	37.78422 AU	min. Earth dist.	-4466 Dec 12 j 18:37	15° $\text{8}$ 29'59	35.74329 AU
direct	-4473 Feb 17 j 18:21	2° $\text{8}$ 25'42			-4465 Jan 03 j 21:23	15° $\text{R}$ $\text{8}$	
max. Earth dist.	-4473 May 29 j 21:51	4° $\text{8}$ 13'05	39.65561 AU	direct	-4465 Mar 01 j 11:52	14° $\text{8}$ 20'46	
					-4465 Apr 25 j 19:38	15° $\text{8}$	
conjunction	-4473 Jun 02 j 03:30	4° $\text{8}$ 18'34	3°00'34	max. Earth dist.	-4465 Jun 11 j 04:08	16° $\text{8}$ 16'04	37.60356 AU
minimum elong	-4473 Jun 02 j 03:24	4° $\text{8}$ 18'34	3°00'40				
retrograde	-4473 Sep 11 j 16:33	6° $\text{8}$ 09'47		conjunction	-4465 Jun 14 j 15:00	16° $\text{8}$ 22'20	6°27'41
opposition	-4473 Nov 29 j 14:24	5° $\text{8}$ 01'31	3°23'16	minimum elong	-4465 Jun 14 j 14:46	16° $\text{8}$ 22'19	6°27'50
min. Earth dist.	-4473 Dec 02 j 12:00	4° $\text{8}$ 57'35	37.53124 AU	retrograde	-4465 Sep 24 j 05:35	18° $\text{8}$ 21'28	
direct	-4472 Feb 19 j 11:39	3° $\text{8}$ 50'55		opposition	-4465 Dec 11 j 13:15	17° $\text{8}$ 10'17	7°03'09
max. Earth dist.	-4472 May 30 j 13:31	5° $\text{8}$ 39'06	39.40072 AU	min. Earth dist.	-4465 Dec 14 j 15:21	17° $\text{8}$ 05'53	35.49022 AU
				direct	-4464 Mar 02 j 07:16	15° $\text{8}$ 56'21	
conjunction	-4472 Jun 02 j 21:12	5° $\text{8}$ 44'47	3°25'52	max. Earth dist.	-4464 Jun 12 j 02:41	17° $\text{8}$ 52'52	37.34855 AU
minimum elong	-4472 Jun 02 j 21:05	5° $\text{8}$ 44'47	3°25'59				
retrograde	-4472 Sep 12 j 09:54	7° $\text{8}$ 36'53		conjunction	-4464 Jun 15 j 13:03	17° $\text{8}$ 59'10	6°54'05
opposition	-4472 Nov 30 j 06:25	6° $\text{8}$ 28'16	3°50'07	minimum elong	-4464 Jun 15 j 12:48	17° $\text{8}$ 59'09	6°54'13
min. Earth dist.	-4472 Dec 03 j 05:35	6° $\text{8}$ 24'13	37.27642 AU	retrograde	-4464 Sep 25 j 02:39	19° $\text{8}$ 59'26	
direct	-4471 Feb 20 j 03:51	5° $\text{8}$ 17'16		opposition	-4464 Dec 12 j 09:56	18° $\text{8}$ 47'54	7°31'13
max. Earth dist.	-4471 Jun 01 j 08:03	7° $\text{8}$ 06'25	39.14413 AU	min. Earth dist.	-4464 Dec 15 j 12:45	18° $\text{8}$ 43'25	35.23714 AU
				direct	-4463 Mar 04 j 03:18	17° $\text{8}$ 33'32	



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 28

Attention, astronomical year style is used: The year -4463 in astronomical counting style is the year 4464 BCE in historical counting style.

max. Earth dist.	-4463 Jun 14 j 00:14	19° $\text{I}$ 31'11	37.09345 AU	min. Earth dist.	-4456 Dec 29 j 11:34	2° $\text{II}$ 44'06	33.23148 AU
				direct	-4455 Mar 17 j 18:15	1° $\text{II}$ 30'44	
conjunction	-4463 Jun 17 j 11:39	19° $\text{I}$ 37'37	7°20'31	max. Earth dist.	-4455 Jun 28 j 12:49	3° $\text{II}$ 38'48	35.07319 AU
minimum elong	-4463 Jun 17 j 11:23	19° $\text{I}$ 37'36	7°20'41				
retrograde	-4463 Sep 27 j 02:10	21° $\text{I}$ 39'04		conjunction	-4455 Jul 02 j 00:27	3° $\text{II}$ 45'47	10°49'37
opposition	-4463 Dec 14 j 07:06	20° $\text{I}$ 27'09	7°59'20	minimum elong	-4455 Jul 02 j 00:04	3° $\text{II}$ 45'45	10°49'49
min. Earth dist.	-4463 Dec 17 j 09:54	20° $\text{I}$ 22'39	34.98401 AU	retrograde	-4455 Oct 11 j 19:45	5° $\text{II}$ 57'19	
direct	-4462 Mar 05 j 22:34	19° $\text{I}$ 12'21		opposition	-4455 Dec 28 j 11:05	4° $\text{II}$ 42'02	11°41'50
max. Earth dist.	-4462 Jun 15 j 22:57	21° $\text{I}$ 11'11	36.83788 AU	min. Earth dist.	-4455 Dec 31 j 15:10	4° $\text{II}$ 37'12	32.99186 AU
				direct	-4454 Mar 19 j 18:01	3° $\text{II}$ 23'26	
conjunction	-4462 Jun 19 j 11:02	21° $\text{I}$ 17'44	7°46'59	max. Earth dist.	-4454 Jun 30 j 18:33	5° $\text{II}$ 33'01	34.83272 AU
minimum elong	-4462 Jun 19 j 10:45	21° $\text{I}$ 17'43	7°47'08				
retrograde	-4462 Sep 29 j 01:47	23° $\text{I}$ 20'22		conjunction	-4454 Jul 04 j 05:08	5° $\text{II}$ 39'59	11°14'45
opposition	-4462 Dec 16 j 05:11	22° $\text{I}$ 08'03	8°27'29	minimum elong	-4454 Jul 04 j 04:45	5° $\text{II}$ 39'57	11°14'56
min. Earth dist.	-4462 Dec 19 j 09:22	22° $\text{I}$ 03'26	34.73051 AU	retrograde	-4454 Oct 14 j 02:15	7° $\text{II}$ 52'54	
direct	-4461 Mar 07 j 18:47	20° $\text{I}$ 52'48		opposition	-4454 Dec 30 j 15:02	6° $\text{II}$ 37'13	12°08'33
max. Earth dist.	-4461 Jun 17 j 23:00	22° $\text{I}$ 52'52	36.58208 AU	min. Earth dist.	-4453 Jan 02 j 17:34	6° $\text{II}$ 32'28	32.75640 AU
				direct	-4453 Mar 21 j 20:27	5° $\text{II}$ 18'12	
conjunction	-4461 Jun 21 j 11:02	22° $\text{I}$ 59'29	8°13'26	max. Earth dist.	-4453 Jul 02 j 23:53	7° $\text{II}$ 29'13	34.59616 AU
minimum elong	-4461 Jun 21 j 10:45	22° $\text{I}$ 59'28	8°13'37				
retrograde	-4461 Oct 01 j 03:32	25° $\text{I}$ 03'19		conjunction	-4453 Jul 06 j 10:37	7° $\text{II}$ 36'16	11°39'29
opposition	-4461 Dec 18 j 03:46	23° $\text{I}$ 50'35	8°55'39	minimum elong	-4453 Jul 06 j 10:13	7° $\text{II}$ 36'14	11°39'41
min. Earth dist.	-4461 Dec 21 j 07:27	23° $\text{I}$ 45'59	34.47699 AU	retrograde	-4453 Oct 16 j 10:10	9° $\text{II}$ 50'37	
direct	-4460 Mar 08 j 17:17	22° $\text{I}$ 34'52		opposition	-4452 Jan 01 j 19:56	8° $\text{II}$ 34'33	12°34'50
max. Earth dist.	-4460 Jun 18 j 22:26	24° $\text{I}$ 36'08	36.32630 AU	min. Earth dist.	-4452 Jan 04 j 23:03	8° $\text{II}$ 29'44	32.52493 AU
				direct	-4452 Mar 22 j 23:38	7° $\text{II}$ 15'06	
conjunction	-4460 Jun 22 j 11:42	24° $\text{I}$ 42'54	8°39'51	max. Earth dist.	-4452 Jul 04 j 07:59	9° $\text{II}$ 27'44	34.36345 AU
minimum elong	-4460 Jun 22 j 11:24	24° $\text{I}$ 42'52	8°40'00				
retrograde	-4460 Oct 02 j 05:28	26° $\text{I}$ 47'57		conjunction	-4452 Jul 07 j 16:58	9° $\text{II}$ 34'43	12°03'46
opposition	-4460 Dec 19 j 03:13	25° $\text{I}$ 34'48	9°23'45	minimum elong	-4452 Jul 07 j 16:35	9° $\text{II}$ 34'41	12°03'57
min. Earth dist.	-4460 Dec 22 j 08:09	25° $\text{I}$ 30'05	34.22403 AU	retrograde	-4452 Oct 17 j 19:06	11° $\text{II}$ 50'29	
direct	-4459 Mar 10 j 15:09	24° $\text{I}$ 18'36		opposition	-4451 Jan 03 j 01:49	10° $\text{II}$ 34'02	13°00'38
max. Earth dist.	-4459 Jun 21 j 00:33	26° $\text{I}$ 21'13	36.07128 AU	min. Earth dist.	-4451 Jan 06 j 03:47	10° $\text{II}$ 29'16	32.29711 AU
				direct	-4451 Mar 25 j 06:22	9° $\text{II}$ 14'10	
conjunction	-4459 Jun 24 j 12:52	26° $\text{I}$ 27'59	9°06'10	max. Earth dist.	-4451 Jul 06 j 14:25	11° $\text{II}$ 28'14	34.13421 AU
minimum elong	-4459 Jun 24 j 12:33	26° $\text{I}$ 27'57	9°06'21				
retrograde	-4459 Oct 04 j 06:58	28° $\text{I}$ 34'16		conjunction	-4451 Jul 09 j 23:55	11° $\text{II}$ 35'19	12°27'32
opposition	-4459 Dec 21 j 03:17	27° $\text{I}$ 20'41	9°51'46	minimum elong	-4451 Jul 09 j 23:30	11° $\text{II}$ 35'17	12°27'45
min. Earth dist.	-4459 Dec 24 j 07:45	27° $\text{I}$ 15'58	33.97215 AU	retrograde	-4451 Oct 20 j 04:25	13° $\text{II}$ 52'32	
direct	-4458 Mar 12 j 16:54	26° $\text{I}$ 04'00		opposition	-4450 Jan 05 j 08:32	12° $\text{II}$ 35'41	13°25'53
max. Earth dist.	-4458 Jun 23 j 01:19	28° $\text{I}$ 07'50	35.81766 AU	min. Earth dist.	-4450 Jan 08 j 10:34	12° $\text{II}$ 30'53	32.07277 AU
				direct	-4450 Mar 27 j 11:14	11° $\text{II}$ 15'23	
conjunction	-4458 Jun 26 j 14:43	28° $\text{I}$ 14'45	9°32'22	max. Earth dist.	-4450 Jul 09 j 00:03	13° $\text{II}$ 31'04	33.90822 AU
minimum elong	-4458 Jun 26 j 14:23	28° $\text{I}$ 14'44	9°32'32				
retrograde	-4458 Aug 28 j 17:25	0° $\text{II}$		conjunction	-4450 Jul 12 j 08:00	13° $\text{II}$ 38'05	12°50'46
	-4458 Oct 06 j 10:29	0° $\text{II}$ 22'18		minimum elong	-4450 Jul 12 j 07:36	13° $\text{II}$ 38'03	12°50'57
	-4458 Nov 14 j 18:41	30° $\text{R}$ $\text{I}$		retrograde	-4450 Oct 22 j 12:44	15° $\text{II}$ 56'43	
opposition	-4458 Dec 23 j 03:54	29° $\text{I}$ 08'17	10°19'39	opposition	-4449 Jan 07 j 16:10	14° $\text{II}$ 39'28	13°50'33
min. Earth dist.	-4458 Dec 26 j 08:36	29° $\text{I}$ 03'31	33.72230 AU	min. Earth dist.	-4449 Jan 10 j 17:46	14° $\text{II}$ 34'40	31.85158 AU
direct	-4457 Mar 14 j 16:49	27° $\text{I}$ 51'06		direct	-4449 Mar 29 j 18:55	13° $\text{II}$ 18'44	
max. Earth dist.	-4457 Jun 25 j 05:06	29° $\text{I}$ 56'22	35.56621 AU	max. Earth dist.	-4449 Jul 11 j 08:36	15° $\text{II}$ 35'51	33.68562 AU
	-4457 Jun 27 j 01:27	0° $\text{II}$					
conjunction	-4457 Jun 28 j 17:24	0° $\text{II}$ 03'16	9°58'22	conjunction	-4449 Jul 14 j 16:46	15° $\text{II}$ 42'58	13°13'22
minimum elong	-4457 Jun 28 j 17:02	0° $\text{II}$ 03'14	9°58'34	minimum elong	-4449 Jul 14 j 16:21	15° $\text{II}$ 42'56	13°13'35
retrograde	-4457 Oct 08 j 12:03	2° $\text{II}$ 12'06		retrograde	-4449 Oct 25 j 00:02	18° $\text{II}$ 03'00	
opposition	-4457 Dec 25 j 05:35	0° $\text{II}$ 57'40	10°47'19	opposition	-4448 Jan 10 j 00:44	16° $\text{II}$ 45'21	14°14'32
min. Earth dist.	-4457 Dec 28 j 10:18	0° $\text{II}$ 52'51	33.47508 AU	min. Earth dist.	-4448 Jan 13 j 01:26	16° $\text{II}$ 40'35	31.63396 AU
	-4456 Feb 06 j 12:43	30° $\text{R}$ $\text{I}$		direct	-4448 Mar 31 j 02:14	15° $\text{II}$ 24'10	
direct	-4456 Mar 15 j 17:48	29° $\text{I}$ 40'00		max. Earth dist.	-4448 Jul 12 j 19:33	17° $\text{II}$ 42'50	33.46659 AU
	-4456 Apr 22 j 05:49	0° $\text{II}$					
max. Earth dist.	-4456 Jun 26 j 08:15	1° $\text{II}$ 46'37	35.31788 AU	conjunction	-4448 Jul 16 j 02:21	17° $\text{II}$ 49'54	13°35'17
				minimum elong	-4448 Jul 16 j 01:57	17° $\text{II}$ 49'52	13°35'29
conjunction	-4456 Jun 29 j 20:27	1° $\text{II}$ 53'35	10°24'09	retrograde	-4448 Oct 26 j 09:24	20° $\text{II}$ 11'22	
minimum elong	-4456 Jun 29 j 20:06	1° $\text{II}$ 53'33	10°24'19	opposition	-4447 Jan 11 j 10:22	18° $\text{II}$ 53'17	14°37'46
retrograde	-4456 Oct 09 j 15:39	4° $\text{II}$ 03'45		min. Earth dist.	-4447 Jan 14 j 11:07	18° $\text{II}$ 48'28	31.42012 AU
opposition	-4456 Dec 26 j 07:54	2° $\text{II}$ 48'52	11°14'44	direct	-4447 Apr 02 j 09:41	17° $\text{II}$ 31'38	
				max. Earth dist.	-4447 Jul 15 j 06:42	19° $\text{II}$ 51'47	33.25184 AU



## Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 29

Attention, astronomical year style is used: The year -4447 in astronomical counting style is the year 4448 BCE in historical counting style.

conjunction	-4447 Jul 18 j 12:37	19°II58'51	13°56'27	conjunction	-4439 Aug 06 j 01:03	8°☾21'00	16°07'38
minimum elong	-4447 Jul 18 j 12:12	19°II58'48	13°56'39	minimum elong	-4439 Aug 06 j 00:46	8°☾20'59	16°07'52
retrograde	-4447 Oct 28 j 20:19	22°II21'42		retrograde	-4439 Nov 16 j 22:41	10°☾54'29	
opposition	-4446 Jan 13 j 20:32	21°II03'11	15°00'10	opposition	-4438 Feb 01 j 15:35	9°☾33'06	17°17'23
min. Earth dist.	-4446 Jan 16 j 19:36	20°II58'28	31.21083 AU	min. Earth dist.	-4438 Feb 04 j 02:23	9°☾29'03	29.78158 AU
direct	-4446 Apr 04 j 19:11	19°II41'05		direct	-4438 Apr 23 j 03:03	8°☾08'12	
max. Earth dist.	-4446 Jul 17 j 18:42	22°II02'43	33.04186 AU	max. Earth dist.	-4438 Aug 06 j 05:04	10°☾41'43	31.62255 AU
conjunction	-4446 Jul 20 j 23:45	22°II09'45	14°16'45	conjunction	-4438 Aug 08 j 17:44	10°☾47'39	16°18'04
minimum elong	-4446 Jul 20 j 23:22	22°II09'43	14°16'58	minimum elong	-4438 Aug 08 j 17:30	10°☾47'38	16°18'16
retrograde	-4446 Oct 31 j 07:46	24°II33'59		retrograde	-4438 Nov 19 j 17:35	13°☾22'17	
opposition	-4445 Jan 16 j 07:52	23°II15'02	15°21'37	opposition	-4437 Feb 04 j 09:49	12°☾00'39	17°27'59
min. Earth dist.	-4445 Jan 19 j 06:54	23°II10'18	31.00669 AU	min. Earth dist.	-4437 Feb 06 j 17:45	11°☾56'47	29.63799 AU
direct	-4445 Apr 07 j 03:33	21°II52'29		direct	-4437 Apr 25 j 20:14	10°☾35'31	
max. Earth dist.	-4445 Jul 20 j 08:31	24°II15'41	32.83764 AU	max. Earth dist.	-4437 Aug 09 j 00:51	13°☾10'20	31.48111 AU
conjunction	-4445 Jul 23 j 11:29	24°II22'36	14°36'08	conjunction	-4437 Aug 11 j 11:06	13°☾16'04	16°26'56
minimum elong	-4445 Jul 23 j 11:05	24°II22'34	14°36'21	minimum elong	-4437 Aug 11 j 10:53	13°☾16'03	16°27'09
retrograde	-4445 Nov 02 j 20:50	26°II48'12		retrograde	-4437 Nov 22 j 12:13	15°☾51'48	
opposition	-4444 Jan 18 j 20:01	25°II28'49	15°42'02	opposition	-4436 Feb 07 j 05:04	14°☾29'54	17°36'54
min. Earth dist.	-4444 Jan 21 j 16:42	25°II24'12	30.80860 AU	min. Earth dist.	-4436 Feb 09 j 11:57	14°☾26'05	29.50205 AU
direct	-4444 Apr 08 j 15:05	24°II05'49		direct	-4436 Apr 27 j 12:11	13°☾04'33	
max. Earth dist.	-4444 Jul 21 j 21:54	26°II30'28	32.63998 AU	max. Earth dist.	-4436 Aug 10 j 21:18	15°☾40'34	31.34785 AU
conjunction	-4444 Jul 24 j 23:56	26°II37'22	14°54'28	conjunction	-4436 Aug 13 j 04:59	15°☾46'05	16°34'10
minimum elong	-4444 Jul 24 j 23:34	26°II37'20	14°54'41	minimum elong	-4436 Aug 13 j 04:49	15°☾46'04	16°34'22
retrograde	-4444 Nov 04 j 11:19	29°II04'20		retrograde	-4436 Nov 24 j 07:31	18°☾22'50	
opposition	-4443 Jan 20 j 09:08	27°II44'32	16°01'19	opposition	-4435 Feb 09 j 00:47	17°☾00'41	17°44'03
min. Earth dist.	-4443 Jan 23 j 05:03	27°II39'57	30.61760 AU	min. Earth dist.	-4435 Feb 11 j 04:22	16°☾57'05	29.37402 AU
direct	-4443 Apr 11 j 02:06	26°II21'08		direct	-4435 Apr 30 j 07:06	15°☾35'06	
max. Earth dist.	-4443 Jul 24 j 14:06	28°II47'24	32.44991 AU	max. Earth dist.	-4435 Aug 13 j 17:38	18°☾12'11	31.22286 AU
conjunction	-4443 Jul 27 j 13:04	28°II54'04	15°11'41	conjunction	-4435 Aug 15 j 23:18	18°☾17'33	16°39'44
minimum elong	-4443 Jul 27 j 12:42	28°II54'02	15°11'54	minimum elong	-4435 Aug 15 j 23:10	18°☾17'32	16°39'57
	-4443 Aug 26 j 18:10	0°☾		retrograde	-4435 Nov 27 j 02:21	20°☾55'13	
retrograde	-4443 Nov 07 j 02:17	1°☾22'23		opposition	-4434 Feb 11 j 21:16	19°☾32'48	17°49'21
opposition	-4442 Jan 22 j 23:05	0°☾02'13	16°19'22	min. Earth dist.	-4434 Feb 13 j 23:30	19°☾29'17	29.25425 AU
	-4442 Jan 24 j 07:46	30°RII		direct	-4434 May 03 j 01:32	18°☾07'01	
min. Earth dist.	-4442 Jan 25 j 16:43	29°II57'46	30.43419 AU	max. Earth dist.	-4434 Aug 16 j 15:53	20°☾45'12	31.10675 AU
direct	-4442 Apr 13 j 16:31	28°II38'27		conjunction	-4434 Aug 18 j 18:06	20°☾50'14	16°43'34
	-4442 Jun 26 j 17:41	0°☾		minimum elong	-4434 Aug 18 j 18:00	20°☾50'13	16°43'45
max. Earth dist.	-4442 Jul 27 j 04:58	1°☾06'09	32.26790 AU	retrograde	-4434 Nov 29 j 22:05	23°☾28'44	
conjunction	-4442 Jul 30 j 02:58	1°☾12'46	15°27'41	opposition	-4433 Feb 14 j 18:10	22°☾06'04	17°52'45
minimum elong	-4442 Jul 30 j 02:38	1°☾12'44	15°27'53	min. Earth dist.	-4433 Feb 16 j 17:06	22°☾02'46	29.14321 AU
retrograde	-4442 Nov 09 j 18:44	3°☾42'25		direct	-4433 May 05 j 22:04	20°☾40'05	
opposition	-4441 Jan 25 j 13:47	2°☾21'55	16°36'04	max. Earth dist.	-4433 Aug 19 j 13:05	23°☾19'08	31.00006 AU
min. Earth dist.	-4441 Jan 28 j 05:49	2°☾17'33	30.25897 AU	conjunction	-4433 Aug 21 j 13:10	23°☾23'58	16°45'34
direct	-4441 Apr 16 j 05:08	0°☾57'48		minimum elong	-4433 Aug 21 j 13:06	23°☾23'58	16°45'47
max. Earth dist.	-4441 Jul 29 j 22:56	3°☾27'07	32.09425 AU	retrograde	-4433 Dec 02 j 18:50	26°☾03'13	
conjunction	-4441 Aug 01 j 17:44	3°☾33'30	15°42'23	opposition	-4432 Feb 17 j 15:47	24°☾40'18	17°54'10
minimum elong	-4441 Aug 01 j 17:24	3°☾33'28	15°42'36	min. Earth dist.	-4432 Feb 19 j 12:31	24°☾37'10	29.04185 AU
retrograde	-4441 Nov 12 j 10:56	6°☾04'28		direct	-4432 May 07 j 17:11	23°☾14'08	
opposition	-4440 Jan 28 j 05:37	4°☾43'39	16°51'21	max. Earth dist.	-4432 Aug 21 j 12:42	25°☾54'10	30.90374 AU
min. Earth dist.	-4440 Jan 30 j 19:51	4°☾39'23	30.09184 AU	conjunction	-4432 Aug 23 j 08:27	25°☾58'35	16°45'43
direct	-4440 Apr 17 j 20:21	3°☾19'15		minimum elong	-4432 Aug 23 j 08:25	25°☾58'35	16°45'54
max. Earth dist.	-4440 Jul 31 j 15:28	5°☾49'57	31.92898 AU	retrograde	-4432 Dec 04 j 15:01	28°☾38'28	
conjunction	-4440 Aug 03 j 08:54	5°☾56'15	15°55'44	opposition	-4431 Feb 19 j 13:48	27°☾15'20	17°53'33
minimum elong	-4440 Aug 03 j 08:36	5°☾56'14	15°55'56	min. Earth dist.	-4431 Feb 21 j 07:08	27°☾12'25	28.95077 AU
retrograde	-4440 Nov 14 j 06:04	8°☾28'30		direct	-4431 May 10 j 16:08	25°☾49'02	
opposition	-4439 Jan 29 j 22:11	7°☾07'24	17°05'09	max. Earth dist.	-4431 Aug 24 j 10:30	28°☾29'44	30.81850 AU
min. Earth dist.	-4439 Feb 01 j 10:01	7°☾03'17	29.93285 AU	conjunction	-4431 Aug 26 j 03:56	28°☾33'56	16°43'57
direct	-4439 Apr 20 j 11:33	5°☾42'44		minimum elong	-4431 Aug 26 j 03:57	28°☾33'56	16°44'09
max. Earth dist.	-4439 Aug 03 j 10:33	8°☾14'56	31.77174 AU		-4431 Oct 02 j 09:41	0°♁	



Attention, astronomical year style is used: The year -4431 in astronomical counting style is the year 4432 BCE in historical counting style.

retrograde	-4431 Dec 07 j 12:49	1°♏14'22		minimum elong	-4423 Sep 15 j 19:17	19°♏29'27	15°19'51
	-4430 Feb 17 j 04:17	30°♏♏		max. Earth dist.	-4423 Sep 15 j 06:37	19°♏28'09	30.55763 AU
opposition	-4430 Feb 22 j 11:59	29°♏51'02	17°50'49	retrograde	-4423 Dec 28 j 15:13	22°♏10'47	
min. Earth dist.	-4430 Feb 24 j 02:04	29°♏48'22	28.87093 AU	opposition	-4422 Mar 16 j 06:16	20°♏47'15	16°13'28
direct	-4430 May 13 j 13:09	28°♏24'39		min. Earth dist.	-4422 Mar 16 j 17:10	20°♏46'29	28.63914 AU
	-4430 Jul 30 j 09:12	0°♏		direct	-4422 Jun 04 j 03:26	19°♏21'34	
max. Earth dist.	-4430 Aug 27 j 10:58	1°♏06'10	30.74505 AU				
conjunction	-4430 Aug 28 j 23:48	1°♏09'55	16°40'13	conjunction	-4422 Sep 18 j 14:18	22°♏05'35	15°00'51
minimum elong	-4430 Aug 28 j 23:52	1°♏09'55	16°40'24	minimum elong	-4422 Sep 18 j 14:37	22°♏05'37	15°00'59
retrograde	-4430 Dec 10 j 09:14	3°♏50'48		max. Earth dist.	-4422 Sep 18 j 04:50	22°♏04'38	30.57408 AU
opposition	-4429 Feb 25 j 10:47	2°♏27'20	17°45'58	retrograde	-4422 Dec 31 j 11:10	24°♏46'37	
min. Earth dist.	-4429 Feb 26 j 21:44	2°♏24'53	28.80259 AU	opposition	-4421 Mar 19 j 05:27	23°♏23'07	15°52'24
direct	-4429 May 16 j 11:13	1°♏00'55		min. Earth dist.	-4421 Mar 19 j 13:34	23°♏22'33	28.65771 AU
max. Earth dist.	-4429 Aug 30 j 09:23	3°♏42'56	30.68373 AU	direct	-4421 Jun 07 j 00:28	21°♏57'37	
conjunction	-4429 Aug 31 j 19:32	3°♏46'25	16°34'30	conjunction	-4421 Sep 21 j 09:11	24°♏40'57	14°40'19
minimum elong	-4429 Aug 31 j 19:38	3°♏46'25	16°34'42	minimum elong	-4421 Sep 21 j 09:33	24°♏41'00	14°40'27
retrograde	-4429 Dec 13 j 08:36	6°♏27'41		max. Earth dist.	-4421 Sep 21 j 04:01	24°♏40'26	30.60120 AU
opposition	-4428 Feb 28 j 09:48	5°♏04'07	17°38'59	retrograde	-4420 Jan 03 j 05:30	27°♏21'31	
min. Earth dist.	-4428 Feb 29 j 16:42	5°♏01'57	28.74614 AU	opposition	-4420 Mar 21 j 04:17	25°♏58'06	15°29'33
direct	-4428 May 18 j 10:14	3°♏37'43		min. Earth dist.	-4420 Mar 21 j 08:32	25°♏57'48	28.68669 AU
max. Earth dist.	-4428 Sep 01 j 10:03	6°♏20'20	30.63447 AU	direct	-4420 Jun 09 j 00:37	24°♏32'47	
conjunction	-4428 Sep 02 j 15:36	6°♏23'21	16°26'49	conjunction	-4420 Sep 23 j 03:34	27°♏15'20	14°18'10
minimum elong	-4428 Sep 02 j 15:44	6°♏23'22	16°27'00	minimum elong	-4420 Sep 23 j 03:56	27°♏15'22	14°18'17
retrograde	-4428 Dec 15 j 05:02	9°♏04'54		max. Earth dist.	-4420 Sep 23 j 01:05	27°♏15'05	30.63916 AU
opposition	-4427 Mar 02 j 09:04	7°♏41'17	17°29'51	retrograde	-4419 Jan 05 j 01:01	29°♏55'21	
min. Earth dist.	-4427 Mar 03 j 13:22	7°♏39'17	28.70127 AU	opposition	-4419 Mar 24 j 02:35	28°♏31'59	15°04'58
direct	-4427 May 21 j 08:44	6°♏14'56		min. Earth dist.	-4419 Mar 24 j 03:15	28°♏31'57	28.72680 AU
max. Earth dist.	-4427 Sep 04 j 08:54	8°♏57'53	30.59708 AU	direct	-4419 Jun 11 j 21:11	27°♏06'54	
conjunction	-4427 Sep 05 j 11:31	9°♏00'36	16°17'10	conjunction	-4419 Sep 25 j 21:34	29°♏48'34	13°54'27
minimum elong	-4427 Sep 05 j 11:43	9°♏00'37	16°17'22	minimum elong	-4419 Sep 25 j 21:59	29°♏48'36	13°54'34
retrograde	-4427 Dec 18 j 03:49	11°♏42'20		max. Earth dist.	-4419 Sep 25 j 23:48	29°♏48'47	30.68853 AU
opposition	-4426 Mar 05 j 08:23	10°♏18'42	17°18'37	retrograde	-4419 Sep 30 j 14:57	0°♏	
min. Earth dist.	-4426 Mar 06 j 08:22	10°♏17'00	28.66770 AU	opposition	-4418 Jan 07 j 18:27	2°♏27'57	
direct	-4426 May 24 j 07:45	8°♏52'26		min. Earth dist.	-4418 Mar 27 j 00:33	1°♏04'42	14°38'45
max. Earth dist.	-4426 Sep 07 j 08:58	11°♏35'43	30.57094 AU	direct	-4418 Mar 26 j 21:49	1°♏04'54	28.77822 AU
conjunction	-4426 Sep 08 j 07:34	11°♏38'01	16°05'36		-4418 May 10 j 07:02	30°♏♏	
minimum elong	-4426 Sep 08 j 07:47	11°♏38'03	16°05'46	direct	-4418 Jun 14 j 19:12	29°♏39'52	
retrograde	-4426 Dec 21 j 00:54	14°♏19'50			-4418 Jul 19 j 07:34	0°♏	
opposition	-4425 Mar 08 j 07:59	12°♏56'11	17°05'19	conjunction	-4418 Sep 28 j 14:50	2°♏20'34	13°29'15
min. Earth dist.	-4425 Mar 09 j 05:38	12°♏54'40	28.64494 AU	minimum elong	-4418 Sep 28 j 15:13	2°♏20'37	13°29'21
direct	-4425 May 27 j 06:13	11°♏30'03		max. Earth dist.	-4418 Sep 28 j 19:47	2°♏21'04	30.74962 AU
max. Earth dist.	-4425 Sep 10 j 08:08	14°♏13'26	30.55591 AU	retrograde	-4417 Jan 10 j 13:50	4°♏59'16	
conjunction	-4425 Sep 11 j 03:31	14°♏15'25	15°52'08	opposition	-4417 Mar 29 j 22:02	3°♏36'09	14°10'57
minimum elong	-4425 Sep 11 j 03:47	14°♏15'27	15°52'18	min. Earth dist.	-4417 Mar 29 j 14:53	3°♏36'39	28.84153 AU
retrograde	-4425 Sep 29 j 12:53	15°♏		direct	-4417 Jun 17 j 16:33	2°♏11'36	
opposition	-4425 Dec 23 j 23:02	16°♏57'12		conjunction	-4417 Oct 01 j 07:48	4°♏51'18	13°02'39
min. Earth dist.	-4424 Mar 10 j 07:32	15°♏33'35	16°49'59	minimum elong	-4417 Oct 01 j 08:14	4°♏51'21	13°02'44
direct	-4424 Mar 11 j 00:48	15°♏32'22	28.63276 AU	max. Earth dist.	-4417 Oct 01 j 17:38	4°♏52'17	30.82271 AU
	-4424 Mar 30 j 19:12	15°♏♏		retrograde	-4416 Jan 13 j 06:42	7°♏29'14	
conjunction	-4424 May 29 j 05:57	14°♏07'35		opposition	-4416 Mar 31 j 19:05	6°♏06'18	13°41'42
	-4424 Jul 24 j 07:07	15°♏		min. Earth dist.	-4416 Mar 31 j 08:57	6°♏07'00	28.91667 AU
conjunction	-4424 Sep 12 j 23:17	16°♏52'37	15°36'49	direct	-4416 Jun 19 j 13:49	4°♏42'05	
minimum elong	-4424 Sep 12 j 23:33	16°♏52'39	15°36'57	conjunction	-4416 Oct 02 j 23:59	7°♏20'43	12°34'44
max. Earth dist.	-4424 Sep 12 j 07:18	16°♏50'59	30.55148 AU	minimum elong	-4416 Oct 03 j 00:24	7°♏20'45	12°34'49
retrograde	-4424 Dec 25 j 18:45	19°♏34'15		max. Earth dist.	-4416 Oct 03 j 12:34	7°♏21'58	30.90767 AU
opposition	-4423 Mar 13 j 07:07	18°♏10'40	16°32'41	retrograde	-4415 Jan 15 j 01:02	9°♏57'50	
min. Earth dist.	-4423 Mar 13 j 22:04	18°♏09'37	28.63090 AU	opposition	-4415 Apr 03 j 15:24	8°♏35'07	13°11'05
direct	-4423 Jun 01 j 03:53	16°♏44'50		min. Earth dist.	-4415 Apr 03 j 00:35	8°♏36'08	29.00341 AU
conjunction	-4423 Sep 15 j 18:57	19°♏29'25	15°19'42	direct	-4415 Jun 22 j 09:34	7°♏11'15	
				conjunction	-4415 Oct 05 j 15:47	9°♏48'46	12°05'37



# Planetary Phenomena of Pluto from -4900 through -4400 (UT), Astrodienst AG 7-Dez-2017 14:35, page 31

Attention, astronomical year style is used: The year -4415 in astronomical counting style is the year 4416 BCE in historical counting style.

minimum elong	-4415 Oct 05 j 16:14	9° $\mathring{M}$ 48'48	12°05'42	retrograde	-4406 Feb 05 j 01:45	1° $\mathring{A}$ 02'49	
max. Earth dist.	-4415 Oct 06 j 08:39	9° $\mathring{M}$ 50'26	31.00384 AU		-4406 Apr 14 j 18:44	30° $\mathring{R}$ $\mathring{M}$	
retrograde	-4414 Jan 17 j 17:30	12° $\mathring{M}$ 25'00		min. Earth dist.	-4406 Apr 24 j 07:53	29° $\mathring{M}$ 45'10	30.20175 AU
opposition	-4414 Apr 06 j 11:12	11° $\mathring{M}$ 02'32	12°39'14	opposition	-4406 Apr 26 j 01:19	29° $\mathring{M}$ 42'28	7°54'17
min. Earth dist.	-4414 Apr 05 j 17:58	11° $\mathring{M}$ 03'43	29.10106 AU	direct	-4406 Jul 14 j 22:06	28° $\mathring{M}$ 22'04	
direct	-4414 Jun 25 j 06:11	9° $\mathring{M}$ 39'03			-4406 Oct 04 j 14:06	0° $\mathring{A}$	
conjunction	-4414 Oct 08 j 06:56	12° $\mathring{M}$ 15'24	11°35'25	conjunction	-4406 Oct 26 j 08:30	0° $\mathring{A}$ 47'35	7°07'18
minimum elong	-4414 Oct 08 j 07:21	12° $\mathring{M}$ 15'27	11°35'30	minimum elong	-4406 Oct 26 j 08:48	0° $\mathring{A}$ 47'37	7°07'19
max. Earth dist.	-4414 Oct 09 j 02:35	12° $\mathring{M}$ 17'20	31.11071 AU	max. Earth dist.	-4406 Oct 28 j 03:15	0° $\mathring{A}$ 51'33	32.27159 AU
retrograde	-4413 Jan 20 j 11:08	14° $\mathring{M}$ 50'43		retrograde	-4405 Feb 07 j 11:10	3° $\mathring{A}$ 14'00	
min. Earth dist.	-4413 Apr 08 j 08:50	13° $\mathring{M}$ 29'59	29.20900 AU	min. Earth dist.	-4405 Apr 26 j 19:25	1° $\mathring{A}$ 56'44	30.37514 AU
opposition	-4413 Apr 09 j 06:25	13° $\mathring{M}$ 28'31	12°06'17	opposition	-4405 Apr 28 j 14:42	1° $\mathring{A}$ 53'55	7°16'28
direct	-4413 Jun 28 j 02:40	12° $\mathring{M}$ 05'26		direct	-4405 Jul 17 j 12:05	0° $\mathring{A}$ 33'55	
conjunction	-4413 Oct 10 j 21:25	14° $\mathring{M}$ 40'33	11°04'15	conjunction	-4405 Oct 28 j 17:18	2° $\mathring{A}$ 58'02	6°31'53
minimum elong	-4413 Oct 10 j 21:50	14° $\mathring{M}$ 40'36	11°04'18	minimum elong	-4405 Oct 28 j 17:34	2° $\mathring{A}$ 58'03	6°31'52
max. Earth dist.	-4413 Oct 11 j 20:35	14° $\mathring{M}$ 42'49	31.22733 AU	max. Earth dist.	-4405 Oct 30 j 14:00	3° $\mathring{A}$ 02'08	32.45181 AU
retrograde	-4412 Jan 23 j 01:22	17° $\mathring{M}$ 14'55		retrograde	-4404 Feb 09 j 21:41	5° $\mathring{A}$ 23'15	
min. Earth dist.	-4412 Apr 10 j 01:24	15° $\mathring{M}$ 54'34	29.32653 AU	min. Earth dist.	-4404 Apr 28 j 03:59	4° $\mathring{A}$ 06'31	30.55678 AU
opposition	-4412 Apr 11 j 01:11	15° $\mathring{M}$ 52'58	11°32'20	opposition	-4404 Apr 30 j 03:07	4° $\mathring{A}$ 03'29	6°38'27
direct	-4412 Jun 29 j 20:33	14° $\mathring{M}$ 30'17		direct	-4404 Jul 19 j 00:45	2° $\mathring{A}$ 43'54	
conjunction	-4412 Oct 12 j 11:27	17° $\mathring{M}$ 04'09	10°32'12	conjunction	-4404 Oct 30 j 01:30	5° $\mathring{A}$ 06'37	5°56'18
minimum elong	-4412 Oct 12 j 11:51	17° $\mathring{M}$ 04'11	10°32'15	minimum elong	-4404 Oct 30 j 01:45	5° $\mathring{A}$ 06'39	5°56'18
max. Earth dist.	-4412 Oct 13 j 13:41	17° $\mathring{M}$ 06'41	31.35314 AU	max. Earth dist.	-4404 Nov 01 j 01:16	5° $\mathring{A}$ 10'59	32.63987 AU
retrograde	-4411 Jan 24 j 15:37	19° $\mathring{M}$ 37'28		retrograde	-4403 Feb 11 j 05:39	7° $\mathring{A}$ 30'40	
opposition	-4411 Apr 13 j 18:55	18° $\mathring{M}$ 15'48	10°57'32	min. Earth dist.	-4403 Apr 30 j 13:56	6° $\mathring{A}$ 14'21	30.74645 AU
min. Earth dist.	-4411 Apr 12 j 15:32	18° $\mathring{M}$ 17'38	29.45280 AU	opposition	-4403 May 02 j 14:42	6° $\mathring{A}$ 11'13	6°00'21
direct	-4411 Jul 02 j 16:01	16° $\mathring{M}$ 53'31		direct	-4403 Jul 21 j 12:21	4° $\mathring{A}$ 52'05	
conjunction	-4411 Oct 15 j 00:46	19° $\mathring{M}$ 26'04	9°59'23	conjunction	-4403 Nov 01 j 09:02	7° $\mathring{A}$ 13'27	5°20'38
minimum elong	-4411 Oct 15 j 01:10	19° $\mathring{M}$ 26'06	9°59'26	minimum elong	-4403 Nov 01 j 09:15	7° $\mathring{A}$ 13'28	5°20'38
max. Earth dist.	-4411 Oct 16 j 05:24	19° $\mathring{M}$ 28'49	31.48720 AU	max. Earth dist.	-4403 Nov 03 j 11:11	7° $\mathring{A}$ 17'59	32.83556 AU
retrograde	-4410 Jan 27 j 05:43	21° $\mathring{M}$ 58'19		retrograde	-4402 Feb 13 j 13:31	9° $\mathring{A}$ 36'19	
min. Earth dist.	-4410 Apr 15 j 06:21	20° $\mathring{M}$ 38'55	29.58732 AU	min. Earth dist.	-4402 May 02 j 21:36	8° $\mathring{A}$ 20'33	30.94346 AU
opposition	-4410 Apr 16 j 12:13	20° $\mathring{M}$ 36'55	10°21'58	opposition	-4402 May 05 j 01:33	8° $\mathring{A}$ 17'14	5°22'15
direct	-4410 Jul 05 j 08:26	19° $\mathring{M}$ 15'02		direct	-4402 Jul 24 j 01:19	6° $\mathring{A}$ 58'33	
conjunction	-4410 Oct 17 j 13:27	21° $\mathring{M}$ 46'13	9°25'55	conjunction	-4402 Nov 03 j 15:39	9° $\mathring{A}$ 18'34	4°44'59
minimum elong	-4410 Oct 17 j 13:49	21° $\mathring{M}$ 46'15	9°25'58	minimum elong	-4402 Nov 03 j 15:51	9° $\mathring{A}$ 18'35	4°44'59
max. Earth dist.	-4410 Oct 18 j 21:23	21° $\mathring{M}$ 49'16	31.62914 AU	max. Earth dist.	-4402 Nov 05 j 19:55	9° $\mathring{A}$ 23'15	33.03798 AU
retrograde	-4409 Jan 29 j 16:43	24° $\mathring{M}$ 17'21		retrograde	-4401 Feb 15 j 21:13	11° $\mathring{A}$ 40'18	
min. Earth dist.	-4409 Apr 17 j 20:02	22° $\mathring{M}$ 58'24	29.72943 AU	min. Earth dist.	-4401 May 05 j 05:49	10° $\mathring{A}$ 25'00	31.14729 AU
opposition	-4409 Apr 19 j 04:45	22° $\mathring{M}$ 56'13	9°45'46	opposition	-4401 May 07 j 11:50	10° $\mathring{A}$ 21'34	4°44'12
direct	-4409 Jul 08 j 02:34	21° $\mathring{M}$ 34'43		direct	-4401 Jul 26 j 11:14	9° $\mathring{A}$ 03'21	
conjunction	-4409 Oct 20 j 01:20	24° $\mathring{M}$ 04'30	8°51'54	conjunction	-4401 Nov 05 j 21:53	11° $\mathring{A}$ 22'02	4°09'25
minimum elong	-4409 Oct 20 j 01:42	24° $\mathring{M}$ 04'32	8°51'56	minimum elong	-4401 Nov 05 j 22:03	11° $\mathring{A}$ 22'03	4°09'23
max. Earth dist.	-4409 Oct 21 j 11:00	24° $\mathring{M}$ 07'42	31.77848 AU	max. Earth dist.	-4401 Nov 08 j 04:56	11° $\mathring{A}$ 26'56	33.24657 AU
retrograde	-4408 Feb 01 j 04:41	26° $\mathring{M}$ 34'29		retrograde	-4400 Feb 18 j 01:40	13° $\mathring{A}$ 42'37	
min. Earth dist.	-4408 Apr 19 j 08:46	25° $\mathring{M}$ 15'59	29.87924 AU	min. Earth dist.	-4400 May 06 j 13:13	12° $\mathring{A}$ 27'48	31.35691 AU
opposition	-4408 Apr 20 j 20:29	25° $\mathring{M}$ 13'37	9°09'01	opposition	-4400 May 08 j 21:11	12° $\mathring{A}$ 24'16	4°06'18
direct	-4408 Jul 09 j 17:06	23° $\mathring{M}$ 52'29		direct	-4400 Jul 27 j 21:56	11° $\mathring{A}$ 06'30	
conjunction	-4408 Oct 21 j 12:33	26° $\mathring{M}$ 20'51	8°17'24	conjunction	-4400 Nov 07 j 03:19	13° $\mathring{A}$ 23'51	3°33'58
minimum elong	-4408 Oct 21 j 12:53	26° $\mathring{M}$ 20'53	8°17'26	minimum elong	-4400 Nov 07 j 03:27	13° $\mathring{A}$ 23'52	3°33'56
max. Earth dist.	-4408 Oct 23 j 01:54	26° $\mathring{M}$ 24'22	31.93526 AU	max. Earth dist.	-4400 Nov 09 j 11:20	13° $\mathring{A}$ 28'49	33.46030 AU
retrograde	-4407 Feb 02 j 14:23	28° $\mathring{M}$ 49'39					
min. Earth dist.	-4407 Apr 21 j 21:40	27° $\mathring{M}$ 31'31	30.03653 AU				
opposition	-4407 Apr 23 j 11:24	27° $\mathring{M}$ 29'02	8°31'50				
direct	-4407 Jul 12 j 08:25	26° $\mathring{M}$ 08'16					
conjunction	-4407 Oct 23 j 22:51	28° $\mathring{M}$ 35'12	7°42'30				
minimum elong	-4407 Oct 23 j 23:10	28° $\mathring{M}$ 35'14	7°42'31				
max. Earth dist.	-4407 Oct 25 j 13:52	28° $\mathring{M}$ 38'51	32.09951 AU				
	-4407 Dec 03 j 05:16	0° $\mathring{A}$					



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 1

Attention, astronomical year style is used: The year -4400 in astronomical counting style is the year 4401 BCE in historical counting style.

retrograde	-4400 Feb 18 j 01:40	13° <del>42</del> '37		minimum elong	-4393 Nov 21 j 00:03	26° <del>49</del> '30	0°26'00
min. Earth dist.	-4400 May 06 j 13:13	12° <del>42</del> '48	31.35691 AU	max. Earth dist.	-4393 Nov 23 j 18:58	26° <del>45</del> '04	35.05446 AU
opposition	-4400 May 08 j 21:11	12° <del>42</del> '16	4°06'18	retrograde	-4392 Mar 04 j 04:13	29° <del>40</del> '02	
direct	-4400 Jul 27 j 21:56	11° <del>40</del> '30		min. Earth dist.	-4392 May 22 j 01:04	27° <del>49</del> '22	33.17436 AU
				opposition	-4392 May 24 j 22:04	27° <del>45</del> '12	0°-45'-2
conjunction	-4400 Nov 07 j 03:19	13° <del>42</del> '51	3°33'58	direct	-4392 Aug 13 j 01:05	26° <del>40</del> '33	
minimum elong	-4400 Nov 07 j 03:27	13° <del>42</del> '52	3°33'56				
max. Earth dist.	-4400 Nov 09 j 11:20	13° <del>42</del> '49	33.46030 AU	conjunction	-4392 Nov 22 j 00:35	28° <del>43</del> '46	0°-58'-30
retrograde	-4399 Feb 19 j 07:21	15° <del>43</del> '19		minimum elong	-4392 Nov 22 j 00:33	28° <del>43</del> '46	0°58'36
min. Earth dist.	-4399 May 08 j 19:36	14° <del>42</del> '59	31.57164 AU	max. Earth dist.	-4392 Nov 24 j 21:56	28° <del>43</del> '31	35.29592 AU
opposition	-4399 May 11 j 05:52	14° <del>42</del> '51	3°28'36		-4391 Jan 05 j 21:06	0° <del>40</del> '	
direct	-4399 Jul 30 j 05:26	13° <del>40</del> '01		retrograde	-4391 Mar 06 j 02:19	0° <del>40</del> '48'15	
					-4391 May 07 j 16:59	30° <del>40</del> '	
conjunction	-4399 Nov 09 j 08:17	15° <del>42</del> '04	2°58'44	min. Earth dist.	-4391 May 24 j 03:05	29° <del>43</del> '56	33.41798 AU
minimum elong	-4399 Nov 09 j 08:24	15° <del>42</del> '05	2°58'41	opposition	-4391 May 27 j 00:54	29° <del>43</del> '43	-1°-19'-19
max. Earth dist.	-4399 Nov 11 j 19:03	15° <del>42</del> '13	33.67836 AU	direct	-4391 Aug 15 j 05:25	28° <del>43</del> '18'28	
retrograde	-4398 Feb 21 j 10:57	17° <del>42</del> '24			-4391 Nov 11 j 11:53	0° <del>40</del> '	
min. Earth dist.	-4398 May 11 j 02:44	16° <del>42</del> '26	31.79043 AU				
opposition	-4398 May 13 j 13:49	16° <del>42</del> '45	2°51'10	conjunction	-4391 Nov 24 j 00:18	0° <del>40</del> '24'31	-1°-30'-36
direct	-4398 Aug 01 j 13:21	15° <del>40</del> '52		minimum elong	-4391 Nov 24 j 00:14	0° <del>40</del> '24'30	1°30'43
				max. Earth dist.	-4391 Nov 26 j 22:05	0° <del>40</del> '30'15	35.54102 AU
conjunction	-4398 Nov 11 j 12:33	17° <del>42</del> '37	2°23'45	retrograde	-4390 Mar 08 j 02:21	2° <del>40</del> '33'58	
minimum elong	-4398 Nov 11 j 12:39	17° <del>42</del> '37	2°23'42	min. Earth dist.	-4390 May 26 j 02:51	1° <del>40</del> '23'05	33.66532 AU
max. Earth dist.	-4398 Nov 13 j 23:53	17° <del>42</del> '747	33.90006 AU	opposition	-4390 May 29 j 03:04	1° <del>40</del> '18'46	-1°-53'-1
retrograde	-4397 Feb 23 j 16:36	19° <del>43</del> '949		direct	-4390 Aug 17 j 06:42	0° <del>40</del> '04'53	
min. Earth dist.	-4397 May 13 j 07:20	18° <del>42</del> '62'20	32.01286 AU				
opposition	-4397 May 15 j 21:04	18° <del>42</del> '23'30	2°14'04	conjunction	-4390 Nov 25 j 23:39	2° <del>40</del> '09'49	-2°-2'-11
direct	-4397 Aug 03 j 19:51	17° <del>40</del> '06'02		minimum elong	-4390 Nov 25 j 23:35	2° <del>40</del> '09'49	2°02'18
				max. Earth dist.	-4390 Nov 28 j 23:47	2° <del>40</del> '15'42	35.78939 AU
conjunction	-4397 Nov 13 j 16:12	19° <del>43</del> '19'29	1°49'04	retrograde	-4389 Mar 10 j 01:50	4° <del>40</del> '18'17	
minimum elong	-4397 Nov 13 j 16:16	19° <del>43</del> '19'29	1°49'00	min. Earth dist.	-4389 May 28 j 04:19	3° <del>40</del> '07'43	33.91585 AU
max. Earth dist.	-4397 Nov 16 j 05:49	19° <del>43</del> '24'48	34.12481 AU	opposition	-4389 May 31 j 04:46	3° <del>40</del> '03'25	-2°-26'-8
retrograde	-4396 Feb 25 j 20:46	21° <del>43</del> '35'33		direct	-4389 Aug 19 j 07:16	1° <del>40</del> '49'56	
min. Earth dist.	-4396 May 14 j 13:33	20° <del>42</del> '22'22	32.23840 AU				
opposition	-4396 May 17 j 03:42	20° <del>42</del> '18'32	1°37'20	conjunction	-4389 Nov 27 j 22:24	3° <del>40</del> '53'47	-2°-33'-12
direct	-4396 Aug 05 j 02:32	19° <del>40</del> '02'27		minimum elong	-4389 Nov 27 j 22:18	3° <del>40</del> '53'46	2°33'19
				max. Earth dist.	-4389 Nov 30 j 23:08	3° <del>40</del> '59'39	36.04052 AU
conjunction	-4396 Nov 14 j 19:16	21° <del>43</del> '14'37	1°14'43	retrograde	-4388 Mar 11 j 01:48	6° <del>40</del> '01'15	
minimum elong	-4396 Nov 14 j 19:19	21° <del>43</del> '14'37	1°14'40	min. Earth dist.	-4388 May 29 j 03:14	4° <del>40</del> '51'08	34.16881 AU
max. Earth dist.	-4396 Nov 17 j 09:42	21° <del>43</del> '19'57	34.35248 AU	opposition	-4388 Jun 01 j 05:43	4° <del>40</del> '46'44	-2°-58'-37
retrograde	-4395 Feb 27 j 01:14	23° <del>42</del> '29'31		direct	-4388 Aug 20 j 07:41	3° <del>40</del> '33'39	
min. Earth dist.	-4395 May 16 j 16:47	22° <del>42</del> '16'46	32.46697 AU				
opposition	-4395 May 19 j 09:12	22° <del>42</del> '12'49	1°01'02	conjunction	-4388 Nov 28 j 20:44	5° <del>40</del> '36'27	-3°-3'-39
direct	-4395 Aug 07 j 08:25	20° <del>40</del> '57'05		minimum elong	-4388 Nov 28 j 20:38	5° <del>40</del> '36'26	3°03'48
				max. Earth dist.	-4388 Dec 01 j 22:34	5° <del>40</del> '42'22	36.29342 AU
conjunction	-4395 Nov 16 j 21:32	23° <del>42</del> '07'59	0°40'46	retrograde	-4387 Mar 13 j 01:13	7° <del>40</del> '42'58	
minimum elong	-4395 Nov 16 j 21:34	23° <del>42</del> '07'59	0°40'41	min. Earth dist.	-4387 May 31 j 03:31	6° <del>40</del> '33'10	34.42349 AU
max. Earth dist.	-4395 Nov 19 j 13:33	23° <del>42</del> '13'24	34.58298 AU	opposition	-4387 Jun 03 j 06:07	6° <del>40</del> '28'47	-3°-30'-28
retrograde	-4394 Mar 01 j 03:00	25° <del>42</del> '21'45		direct	-4387 Aug 22 j 08:04	5° <del>40</del> '16'06	
min. Earth dist.	-4394 May 18 j 21:01	24° <del>42</del> '09'18	32.69896 AU				
opposition	-4394 May 21 j 14:17	24° <del>42</del> '05'20	0°25'10	conjunction	-4387 Nov 30 j 18:43	7° <del>40</del> '17'53	-3°-33'-32
direct	-4394 Aug 09 j 13:50	22° <del>40</del> '49'58		minimum elong	-4387 Nov 30 j 18:36	7° <del>40</del> '17'52	3°33'40
				max. Earth dist.	-4387 Dec 03 j 21:41	7° <del>40</del> '23'50	36.54755 AU
conjunction	-4394 Nov 18 j 23:07	24° <del>42</del> '59'36	0°07'16	retrograde	-4386 Mar 14 j 22:39	9° <del>40</del> '23'27	
minimum elong	-4394 Nov 18 j 23:07	24° <del>42</del> '59'36	0°07'11	min. Earth dist.	-4386 Jun 02 j 02:31	8° <del>40</del> '14'02	34.67896 AU
behind sun begin	-4394 Nov 18 j 17:15	24° <del>42</del> '59'08		opposition	-4386 Jun 05 j 05:58	8° <del>40</del> '09'37	-4°-1'-40
behind sun end	-4394 Nov 19 j 05:00	25° <del>40</del> '00'04		direct	-4386 Aug 24 j 09:47	6° <del>40</del> '57'18	
max. Earth dist.	-4394 Nov 21 j 17:09	25° <del>40</del> '05'09	34.81692 AU				
desc. node	-4393 Feb 06 j 10:54	27° <del>40</del> '03'24		conjunction	-4386 Dec 02 j 16:00	8° <del>40</del> '58'05	-4°-2'-50
retrograde	-4393 Mar 03 j 03:05	27° <del>40</del> '12'14		minimum elong	-4386 Dec 02 j 15:52	8° <del>40</del> '58'04	4°02'58
min. Earth dist.	-4393 May 20 j 23:26	26° <del>40</del> '00'11	32.93459 AU	max. Earth dist.	-4386 Dec 05 j 18:55	9° <del>40</del> '04'00	36.80195 AU
opposition	-4393 May 23 j 18:33	25° <del>40</del> '56'06	0°-10'-11	retrograde	-4385 Mar 16 j 20:44	11° <del>40</del> '02'44	
direct	-4393 Aug 11 j 21:13	24° <del>40</del> '41'05		min. Earth dist.	-4385 Jun 04 j 01:08	9° <del>40</del> '53'40	34.93471 AU
				opposition	-4385 Jun 07 j 05:28	9° <del>40</del> '49'13	-4°-32'-14
conjunction	-4393 Nov 21 j 00:04	26° <del>40</del> '49'30	0°-25'-54	direct	-4385 Aug 26 j 08:50	8° <del>40</del> '37'16	



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 2

Attention, astronomical year style is used: The year -4385 in astronomical counting style is the year 4386 BCE in historical counting style.

conjunction	-4385 Dec 04 j 13:09	10°M37'03	-4°-31'-32	conjunction	-4377 Dec 16 j 20:14	23°M05'20	-7°-58'-54
minimum elong	-4385 Dec 04 j 13:00	10°M37'02	4°31'40	minimum elong	-4377 Dec 16 j 20:01	23°M05'20	7°59'04
max. Earth dist.	-4385 Dec 07 j 17:32	10°M43'03	37.05617 AU	max. Earth dist.	-4377 Dec 20 j 04:17	23°M11'17	39.08931 AU
retrograde	-4384 Mar 17 j 14:55	12°M40'48		retrograde	-4376 Mar 29 j 21:00	25°M02'24	
min. Earth dist.	-4384 Jun 05 j 00:11	11°M32'00	35.19003 AU	min. Earth dist.	-4376 Jun 17 j 14:29	23°M55'58	37.23826 AU
opposition	-4384 Jun 08 j 04:11	11°M27'36	-5°-2'-8	opposition	-4376 Jun 20 j 23:22	23°M51'27	-8°-37'-2
direct	-4384 Aug 27 j 09:43	10°M15'59		direct	-4376 Sep 09 j 06:16	22°M42'20	
conjunction	-4384 Dec 05 j 09:40	12°M14'47	-4°-59'-38	conjunction	-4376 Dec 17 j 13:21	24°M34'09	-8°-22'00
minimum elong	-4384 Dec 05 j 09:31	12°M14'46	4°59'47	minimum elong	-4376 Dec 17 j 13:09	24°M34'09	8°22'11
max. Earth dist.	-4383 Dec 08 j 13:22	12°M20'41	37.30983 AU	max. Earth dist.	-4376 Dec 20 j 22:15	24°M40'07	39.34435 AU
retrograde	-4383 Mar 19 j 11:53	14°M17'38		retrograde	-4375 Mar 31 j 15:05	26°M30'29	
min. Earth dist.	-4383 Jun 06 j 21:03	13°M09'10	35.44491 AU	min. Earth dist.	-4375 Jun 19 j 09:50	25°M24'17	37.49492 AU
opposition	-4383 Jun 10 j 02:24	13°M04'42	-5°-31'-23	opposition	-4375 Jun 22 j 17:46	25°M19'50	-9°00'-50
direct	-4383 Aug 29 j 07:13	11°M53'24		direct	-4375 Sep 10 j 23:31	24°M11'02	
conjunction	-4383 Dec 07 j 05:37	13°M51'15	-5°-27'-7	conjunction	-4375 Dec 19 j 06:08	26°M02'06	-8°-44'-29
minimum elong	-4383 Dec 07 j 05:27	13°M51'14	5°27'16	minimum elong	-4375 Dec 19 j 05:55	26°M02'05	8°44'39
max. Earth dist.	-4383 Dec 10 j 10:42	13°M57'13	37.56291 AU	max. Earth dist.	-4375 Dec 22 j 15:08	26°M08'01	39.59829 AU
retrograde	-4382 Jan 15 j 15:30	15°M		retrograde	-4374 Apr 02 j 09:06	27°M57'41	
retrograde	-4382 Mar 21 j 07:43	15°M53'13		min. Earth dist.	-4374 Jun 21 j 03:07	26°M51'47	37.75001 AU
min. Earth dist.	-4382 May 28 j 17:20	15°RM		opposition	-4374 Jun 24 j 11:38	26°M47'20	-9°-24'00
min. Earth dist.	-4382 Jun 08 j 19:24	14°M44'58	35.69953 AU	direct	-4374 Sep 12 j 17:02	25°M38'49	
opposition	-4382 Jun 12 j 00:10	14°M40'33	-5°-59'-57	conjunction	-4374 Dec 20 j 22:36	27°M29'09	-9°-6'-22
direct	-4382 Aug 31 j 04:19	13°M29'34		minimum elong	-4374 Dec 20 j 22:23	27°M29'09	9°06'33
direct	-4382 Nov 24 j 13:29	15°M		max. Earth dist.	-4374 Dec 24 j 07:03	27°M35'00	39.85026 AU
conjunction	-4382 Dec 09 j 01:09	15°M26'27	-5°-54'00	retrograde	-4373 Apr 04 j 03:37	29°M24'02	
minimum elong	-4382 Dec 09 j 00:59	15°M26'26	5°54'10	min. Earth dist.	-4373 Jun 22 j 21:06	28°M18'22	38.00306 AU
max. Earth dist.	-4382 Dec 12 j 06:28	15°M32'23	37.81600 AU	opposition	-4373 Jun 26 j 05:15	28°M13'57	-9°-46'-31
retrograde	-4381 Mar 23 j 03:57	17°M27'32		direct	-4373 Sep 14 j 09:20	27°M05'43	
min. Earth dist.	-4381 Jun 10 j 14:59	16°M19'37	35.95440 AU	conjunction	-4373 Dec 22 j 14:59	28°M55'20	-9°-27'-39
opposition	-4381 Jun 13 j 21:13	16°M15'09	-6°-27'-51	minimum elong	-4373 Dec 22 j 14:46	28°M55'19	9°27'50
direct	-4381 Sep 02 j 01:34	15°M04'27		max. Earth dist.	-4373 Dec 26 j 00:00	29°M01'11	40.09981 AU
conjunction	-4381 Dec 10 j 20:08	17°M00'26	-6°-20'-15	retrograde	-4372 Jan 31 j 06:39	0°M	
minimum elong	-4381 Dec 10 j 19:56	17°M00'25	6°20'24	retrograde	-4372 Apr 04 j 17:38	0°M49'30	
max. Earth dist.	-4381 Dec 14 j 02:03	17°M06'21	38.06936 AU	min. Earth dist.	-4372 Jun 11 j 06:37	30°RM	
retrograde	-4380 Mar 24 j 00:46	19°M00'38		opposition	-4372 Jun 23 j 15:02	29°M44'01	38.25324 AU
min. Earth dist.	-4380 Jun 11 j 11:33	17°M52'59	36.20997 AU	direct	-4372 Jun 26 j 22:24	29°M39'40	-10°-8'-24
opposition	-4380 Jun 14 j 17:55	17°M48'32	-6°-55'-4	direct	-4372 Sep 15 j 04:40	28°M31'41	
direct	-4380 Sep 02 j 21:27	16°M38'08		direct	-4372 Dec 11 j 07:08	0°M	
conjunction	-4380 Dec 11 j 14:52	18°M33'14	-6°-45'-52	conjunction	-4372 Dec 23 j 06:53	0°M20'34	-9°-48'-22
minimum elong	-4380 Dec 11 j 14:41	18°M33'13	6°46'02	minimum elong	-4372 Dec 23 j 06:39	0°M20'33	9°48'34
max. Earth dist.	-4380 Dec 14 j 21:58	18°M39'13	38.32348 AU	max. Earth dist.	-4372 Dec 26 j 14:29	0°M26'17	40.34641 AU
retrograde	-4379 Mar 25 j 18:05	20°M32'36		retrograde	-4371 Apr 06 j 08:00	2°M14'01	
min. Earth dist.	-4379 Jun 13 j 06:56	19°M25'15	36.46622 AU	min. Earth dist.	-4371 Jun 25 j 07:18	1°M08'47	38.50056 AU
opposition	-4379 Jun 16 j 13:49	19°M20'47	-7°-21'-35	opposition	-4371 Jun 28 j 15:04	1°M04'25	-10°-29'-40
direct	-4379 Sep 04 j 19:13	18°M10'41		direct	-4371 Sep 01 j 01:28	30°RM	
conjunction	-4379 Dec 13 j 09:00	20°M04'56	-7°-10'-50	direct	-4371 Sep 16 j 22:40	29°M56'41	
minimum elong	-4379 Dec 13 j 08:48	20°M04'55	7°11'00	direct	-4371 Oct 02 j 15:20	0°M	
max. Earth dist.	-4379 Dec 16 j 15:51	20°M10'52	38.57830 AU	conjunction	-4371 Dec 24 j 22:27	1°M44'50	-10°-8'-30
retrograde	-4378 Mar 27 j 11:38	22°M03'31		minimum elong	-4371 Dec 24 j 22:14	1°M44'49	10°08'41
min. Earth dist.	-4378 Jun 15 j 01:30	20°M56'29	36.72335 AU	max. Earth dist.	-4371 Dec 28 j 06:50	1°M50'35	40.59016 AU
opposition	-4378 Jun 18 j 09:31	20°M51'58	-7°-47'-25	retrograde	-4370 Apr 07 j 22:00	3°M37'36	
direct	-4378 Sep 06 j 15:00	19°M42'12		min. Earth dist.	-4370 Jun 27 j 01:01	2°M32'29	38.74519 AU
conjunction	-4378 Dec 15 j 02:46	21°M35'37	-7°-35'-11	opposition	-4370 Jun 30 j 07:31	2°M28'12	-10°-50'-19
minimum elong	-4378 Dec 15 j 02:33	21°M35'36	7°35'22	direct	-4370 Sep 18 j 16:26	1°M20'43	
max. Earth dist.	-4378 Dec 18 j 11:21	21°M41'38	38.83372 AU	conjunction	-4370 Dec 26 j 13:33	3°M08'08	-10°-28'-3
retrograde	-4377 Mar 29 j 02:47	23°M33'25		minimum elong	-4370 Dec 26 j 13:19	3°M08'07	10°28'15
min. Earth dist.	-4377 Jun 16 j 21:10	22°M26'39	36.98083 AU	max. Earth dist.	-4370 Dec 29 j 21:13	3°M13'48	40.83156 AU
opposition	-4377 Jun 20 j 04:47	22°M22'10	-8°-12'-34	retrograde	-4369 Apr 09 j 13:31	5°M00'12	
direct	-4377 Sep 08 j 12:30	21°M12'44		min. Earth dist.	-4369 Jun 28 j 16:08	3°M55'20	38.98766 AU
				opposition	-4369 Jul 01 j 23:26	3°M51'02	-11°-10'-21



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 3

Attention, astronomical year style is used: The year -4369 in astronomical counting style is the year 4370 BCE in historical counting style.

direct	-4369 Sep 20 j 08:00	2°♂43'45		minimum elong	-4360 Jan 07 j 16:45	15°♂02'31	12°58'41
				max. Earth dist.	-4360 Jan 10 j 23:32	15°♂07'50	42.92949 AU
conjunction	-4369 Dec 28 j 04:22	4°♂30'29	-10°-47'-2	retrograde	-4360 Apr 20 j 16:26	16°♂49'20	
minimum elong	-4369 Dec 28 j 04:09	4°♂30'28	10°47'13	min. Earth dist.	-4360 Jul 10 j 04:00	15°♂46'15	41.09470 AU
max. Earth dist.	-4369 Dec 31 j 12:03	4°♂36'06	41.07093 AU	opposition	-4360 Jul 13 j 07:20	15°♂42'17	-13°-43'-38
retrograde	-4368 Apr 10 j 05:22	6°♂21'53		direct	-4360 Oct 01 j 16:55	14°♂37'08	
min. Earth dist.	-4368 Jun 29 j 08:30	5°♂17'10	39.22854 AU				
opposition	-4368 Jul 02 j 14:56	5°♂12'55	-11°-29'-46	conjunction	-4359 Jan 08 j 05:28	16°♂18'44	-13°-12'-32
direct	-4368 Sep 20 j 22:34	4°♂05'52		minimum elong	-4359 Jan 08 j 05:17	16°♂18'43	13°12'44
				max. Earth dist.	-4359 Jan 11 j 10:14	16°♂23'54	43.14911 AU
conjunction	-4368 Dec 28 j 18:58	5°♂51'57	-11°-5'-25	retrograde	-4359 Apr 22 j 04:12	18°♂05'00	
minimum elong	-4368 Dec 28 j 18:44	5°♂51'56	11°05'37	min. Earth dist.	-4359 Jul 11 j 16:36	17°♂02'07	41.31425 AU
max. Earth dist.	-4367 Jan 01 j 03:11	5°♂57'34	41.30898 AU	opposition	-4359 Jul 14 j 20:04	16°♂58'09	-13°-57'-54
retrograde	-4367 Apr 11 j 19:16	7°♂42'41		direct	-4359 Oct 03 j 06:04	15°♂53'12	
min. Earth dist.	-4367 Jun 30 j 23:29	6°♂38'11	39.46803 AU				
opposition	-4367 Jul 04 j 06:02	6°♂33'57	-11°-48'-34	conjunction	-4358 Jan 09 j 17:37	17°♂34'15	-13°-26'-7
direct	-4367 Sep 22 j 14:24	5°♂27'07		minimum elong	-4358 Jan 09 j 17:26	17°♂34'14	13°26'20
				max. Earth dist.	-4358 Jan 12 j 22:28	17°♂39'24	43.36470 AU
conjunction	-4367 Dec 30 j 08:56	7°♂12'34	-11°-23'-14	retrograde	-4358 Apr 23 j 14:19	19°♂20'00	
minimum elong	-4367 Dec 30 j 08:44	7°♂12'33	11°23'26	min. Earth dist.	-4358 Jul 13 j 06:55	18°♂17'11	41.52991 AU
max. Earth dist.	-4366 Jan 02 j 16:21	7°♂18'06	41.54578 AU	opposition	-4358 Jul 16 j 08:37	18°♂13'19	-14°-11'-40
retrograde	-4366 Apr 13 j 10:07	9°♂02'41		direct	-4358 Oct 04 j 20:52	17°♂08'32	
min. Earth dist.	-4366 Jul 02 j 13:56	7°♂58'26	39.70649 AU				
opposition	-4366 Jul 05 j 20:57	7°♂54'11	-12°-6'-44	conjunction	-4357 Jan 11 j 05:42	18°♂49'03	-13°-39'-13
direct	-4366 Sep 24 j 04:53	6°♂47'36		minimum elong	-4357 Jan 11 j 05:32	18°♂49'02	13°39'25
				max. Earth dist.	-4357 Jan 14 j 09:40	18°♂54'07	43.57684 AU
conjunction	-4366 Dec 31 j 22:54	8°♂32'27	-11°-40'-28	retrograde	-4357 Apr 25 j 03:07	20°♂34'15	
minimum elong	-4366 Dec 31 j 22:41	8°♂32'26	11°40'40	min. Earth dist.	-4357 Jul 14 j 18:43	19°♂31'36	41.74226 AU
max. Earth dist.	-4365 Jan 04 j 07:20	8°♂38'02	41.78151 AU	opposition	-4357 Jul 17 j 20:35	19°♂27'45	-14°-24'-55
retrograde	-4365 Apr 14 j 21:03	10°♂21'59		direct	-4357 Oct 06 j 08:29	18°♂23'07	
min. Earth dist.	-4365 Jul 04 j 05:24	9°♂17'54	39.94366 AU				
opposition	-4365 Jul 07 j 11:26	9°♂13'43	-12°-24'-19	conjunction	-4356 Jan 12 j 17:22	20°♂03'08	-13°-51'-50
direct	-4365 Sep 25 j 21:38	8°♂07'23		minimum elong	-4356 Jan 12 j 17:12	20°♂03'07	13°52'04
				max. Earth dist.	-4356 Jan 15 j 20:36	20°♂08'06	43.78588 AU
conjunction	-4364 Jan 02 j 12:32	9°♂51'39	-11°-57'-8	retrograde	-4356 Apr 25 j 16:48	21°♂47'48	
minimum elong	-4364 Jan 02 j 12:21	9°♂51'38	11°57'21	min. Earth dist.	-4356 Jul 15 j 07:37	20°♂45'15	41.95192 AU
max. Earth dist.	-4364 Jan 05 j 19:59	9°♂57'08	42.01593 AU	opposition	-4356 Jul 18 j 08:28	20°♂41'28	-14°-37'-39
retrograde	-4364 Apr 15 j 10:42	11°♂40'37		direct	-4356 Oct 06 j 17:55	19°♂36'59	
min. Earth dist.	-4364 Jul 04 j 18:49	10°♂36'49	40.17927 AU				
opposition	-4364 Jul 08 j 01:35	10°♂32'37	-12°-41'-17	conjunction	-4355 Jan 13 j 04:56	21°♂16'29	-14°-3'-57
direct	-4364 Sep 26 j 12:01	9°♂26'32		minimum elong	-4355 Jan 13 j 04:47	21°♂16'29	14°04'10
				max. Earth dist.	-4355 Jan 16 j 08:33	21°♂21'28	43.99253 AU
conjunction	-4363 Jan 03 j 01:54	11°♂10'14	-12°-13'-15	retrograde	-4355 Apr 27 j 02:30	23°♂00'39	
minimum elong	-4363 Jan 03 j 01:41	11°♂10'13	12°13'28	min. Earth dist.	-4355 Jul 16 j 19:30	21°♂58'14	42.15920 AU
max. Earth dist.	-4363 Jan 06 j 09:39	11°♂15'43	42.24842 AU	opposition	-4355 Jul 19 j 19:53	21°♂54'29	-14°-49'-52
retrograde	-4363 Apr 17 j 01:51	12°♂58'39		direct	-4355 Oct 08 j 07:10	20°♂50'10	
min. Earth dist.	-4363 Jul 06 j 10:01	11°♂55'01	40.41279 AU				
opposition	-4363 Jul 09 j 15:27	11°♂50'54	-12°-57'-42	conjunction	-4354 Jan 14 j 16:06	22°♂29'11	-14°-15'-35
direct	-4363 Sep 28 j 00:15	10°♂45'05		minimum elong	-4354 Jan 14 j 15:57	22°♂29'11	14°15'48
				max. Earth dist.	-4354 Jan 17 j 18:19	22°♂34'04	44.19715 AU
conjunction	-4362 Jan 04 j 15:08	12°♂28'15	-12°-28'-50	retrograde	-4354 Apr 28 j 12:45	24°♂12'51	
minimum elong	-4362 Jan 04 j 14:57	12°♂28'14	12°29'04	min. Earth dist.	-4354 Jul 18 j 06:36	23°♂10'37	42.36466 AU
max. Earth dist.	-4362 Jan 07 j 22:37	12°♂33'40	42.47869 AU	opposition	-4354 Jul 21 j 07:12	23°♂06'51	-15°-1'-35
retrograde	-4362 Apr 18 j 15:18	14°♂16'07		direct	-4354 Oct 09 j 18:58	22°♂02'43	
min. Earth dist.	-4362 Jul 07 j 23:29	13°♂12'44	40.64359 AU				
opposition	-4362 Jul 11 j 05:00	13°♂08'38	-13°-13'-32	conjunction	-4353 Jan 16 j 03:07	23°♂41'17	-14°-26'-43
direct	-4362 Sep 29 j 13:21	12°♂03'03		minimum elong	-4353 Jan 16 j 02:59	23°♂41'17	14°26'56
				max. Earth dist.	-4353 Jan 19 j 06:02	23°♂46'11	44.39990 AU
conjunction	-4361 Jan 06 j 03:58	13°♂45'41	-12°-43'-54	retrograde	-4353 Apr 29 j 21:37	25°♂24'28	
minimum elong	-4361 Jan 06 j 03:46	13°♂45'40	12°44'06	min. Earth dist.	-4353 Jul 19 j 19:08	24°♂22'21	42.56808 AU
max. Earth dist.	-4361 Jan 09 j 10:15	13°♂50'59	42.70587 AU	opposition	-4353 Jul 22 j 18:20	24°♂18'40	-15°-12'-47
retrograde	-4361 Apr 20 j 05:54	15°♂33'01		direct	-4353 Oct 11 j 08:04	23°♂14'43	
min. Earth dist.	-4361 Jul 09 j 13:44	14°♂29'48	40.87114 AU				
opposition	-4361 Jul 12 j 18:25	14°♂25'46	-13°-28'-51	conjunction	-4352 Jan 17 j 14:03	24°♂52'50	-14°-37'-23
direct	-4361 Oct 01 j 01:36	13°♂20'25		minimum elong	-4352 Jan 17 j 13:54	24°♂52'50	14°37'36
				max. Earth dist.	-4352 Jan 20 j 15:57	24°♂57'39	44.60072 AU
conjunction	-4360 Jan 07 j 16:56	15°♂02'31	-12°-58'-28	retrograde	-4352 Apr 30 j 07:58	26°♂35'35	



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 4

Attention, astronomical year style is used: The year -4352 in astronomical counting style is the year 4353 BCE in historical counting style.

min. Earth dist.	-4352 Jul 20 j 05:17	25° $\mathring{A}$ 33'40	42.76933 AU	max. Earth dist.	-4344 Jan 29 j 17:41	4° $\mathring{B}$ 13'41	46.08199 AU
opposition	-4352 Jul 23 j 04:58	25° $\mathring{A}$ 29'59	-15°-23'-29	retrograde	-4344 May 09 j 18:37	5° $\mathring{B}$ 48'59	
direct	-4352 Oct 11 j 19:20	24° $\mathring{A}$ 26'13		min. Earth dist.	-4344 Jul 29 j 20:27	4° $\mathring{B}$ 48'00	44.24602 AU
				opposition	-4344 Aug 01 j 12:09	4° $\mathring{B}$ 44'48	-16°-33'-15
conjunction	-4351 Jan 18 j 00:40	26° $\mathring{A}$ 03'55	-14°-47'-35	direct	-4344 Oct 21 j 01:09	3° $\mathring{B}$ 42'19	
minimum elong	-4351 Jan 18 j 00:33	26° $\mathring{A}$ 03'54	14°47'48				
max. Earth dist.	-4351 Jan 21 j 02:00	26° $\mathring{A}$ 08'40	44.79912 AU	conjunction	-4343 Jan 27 j 08:39	5° $\mathring{B}$ 17'00	-15°-54'-9
retrograde	-4351 May 01 j 20:29	27° $\mathring{A}$ 46'14		minimum elong	-4343 Jan 27 j 08:35	5° $\mathring{B}$ 17'00	15°54'23
min. Earth dist.	-4351 Jul 21 j 17:23	26° $\mathring{A}$ 44'26	42.96801 AU	max. Earth dist.	-4343 Jan 30 j 03:31	5° $\mathring{B}$ 21'11	46.24926 AU
opposition	-4351 Jul 24 j 15:41	26° $\mathring{A}$ 40'50	-15°-33'-42	retrograde	-4343 May 11 j 01:53	6° $\mathring{B}$ 56'05	
direct	-4351 Oct 13 j 04:34	25° $\mathring{A}$ 37'16		min. Earth dist.	-4343 Jul 31 j 06:47	5° $\mathring{B}$ 55'11	44.41293 AU
				opposition	-4343 Aug 02 j 21:06	5° $\mathring{B}$ 52'03	-16°-40'-6
conjunction	-4350 Jan 19 j 11:08	27° $\mathring{A}$ 14'34	-14°-57'-20	direct	-4343 Oct 22 j 11:49	4° $\mathring{B}$ 49'42	
minimum elong	-4350 Jan 19 j 11:00	27° $\mathring{A}$ 14'33	14°57'33				
max. Earth dist.	-4350 Jan 22 j 12:29	27° $\mathring{A}$ 19'17	44.99479 AU	conjunction	-4342 Jan 28 j 17:39	6° $\mathring{B}$ 24'01	-16°00'-41
retrograde	-4350 May 03 j 07:43	28° $\mathring{A}$ 56'27		minimum elong	-4342 Jan 28 j 17:35	6° $\mathring{B}$ 24'01	16°00'53
min. Earth dist.	-4350 Jul 23 j 04:23	27° $\mathring{A}$ 54'50	43.16342 AU	max. Earth dist.	-4342 Jan 31 j 11:01	6° $\mathring{B}$ 28'07	46.41378 AU
opposition	-4350 Jul 26 j 02:04	27° $\mathring{A}$ 51'16	-15°-43'-28	retrograde	-4342 May 12 j 09:00	8° $\mathring{B}$ 02'44	
direct	-4350 Oct 14 j 14:03	26° $\mathring{A}$ 47'53		min. Earth dist.	-4342 Aug 01 j 15:09	7° $\mathring{B}$ 02'00	44.57721 AU
				opposition	-4342 Aug 04 j 05:50	6° $\mathring{B}$ 58'51	-16°-46'-32
conjunction	-4349 Jan 20 j 21:30	28° $\mathring{A}$ 24'49	-15°-6'-39	direct	-4342 Oct 23 j 21:40	5° $\mathring{B}$ 56'39	
minimum elong	-4349 Jan 20 j 21:24	28° $\mathring{A}$ 24'48	15°06'52				
max. Earth dist.	-4349 Jan 23 j 21:06	28° $\mathring{A}$ 29'24	45.18692 AU	conjunction	-4341 Jan 30 j 02:39	7° $\mathring{B}$ 30'38	-16°-6'-48
	-4349 Apr 11 j 04:19	0° $\mathring{B}$		minimum elong	-4341 Jan 30 j 02:35	7° $\mathring{B}$ 30'38	16°07'01
retrograde	-4349 May 04 j 19:18	0° $\mathring{B}$ 06'18		max. Earth dist.	-4341 Feb 01 j 19:44	7° $\mathring{B}$ 34'41	46.57568 AU
	-4349 May 28 j 10:10	30° $\mathring{R}$ $\mathring{A}$		retrograde	-4341 May 13 j 16:55	9° $\mathring{B}$ 09'00	
min. Earth dist.	-4349 Jul 24 j 15:15	29° $\mathring{A}$ 04'49	43.35511 AU	min. Earth dist.	-4341 Aug 03 j 01:26	8° $\mathring{B}$ 08'20	44.73890 AU
opposition	-4349 Jul 27 j 12:15	29° $\mathring{A}$ 01'19	-15°-52'-48	opposition	-4341 Aug 05 j 14:24	8° $\mathring{B}$ 05'17	-16°-52'-33
direct	-4349 Oct 15 j 23:08	27° $\mathring{A}$ 58'07		direct	-4341 Oct 25 j 08:05	7° $\mathring{B}$ 03'13	
conjunction	-4348 Jan 22 j 07:55	29° $\mathring{A}$ 34'39	-15°-15'-33	conjunction	-4340 Jan 31 j 11:40	8° $\mathring{B}$ 36'53	-16°-12'-31
minimum elong	-4348 Jan 22 j 07:48	29° $\mathring{A}$ 34'39	15°15'46	minimum elong	-4340 Jan 31 j 11:38	8° $\mathring{B}$ 36'53	16°12'44
max. Earth dist.	-4348 Jan 25 j 07:26	29° $\mathring{A}$ 39'14	45.37494 AU	max. Earth dist.	-4340 Feb 03 j 04:15	8° $\mathring{B}$ 40'54	46.73514 AU
	-4348 Feb 08 j 00:09	0° $\mathring{B}$		retrograde	-4340 May 14 j 03:15	10° $\mathring{B}$ 14'55	
retrograde	-4348 May 05 j 02:18	1° $\mathring{B}$ 15'44		min. Earth dist.	-4340 Aug 03 j 09:51	9° $\mathring{B}$ 14'24	44.89781 AU
min. Earth dist.	-4348 Jul 25 j 03:12	0° $\mathring{B}$ 14'22	43.54223 AU	opposition	-4340 Aug 05 j 22:45	9° $\mathring{B}$ 11'21	-16°-58'-9
opposition	-4348 Jul 27 j 22:19	0° $\mathring{B}$ 10'57	-16°-1'-42	direct	-4340 Oct 25 j 15:29	8° $\mathring{B}$ 09'26	
	-4348 Aug 05 j 22:29	30° $\mathring{R}$ $\mathring{A}$					
direct	-4348 Oct 16 j 12:05	29° $\mathring{A}$ 07'55		conjunction	-4339 Jan 31 j 20:15	9° $\mathring{B}$ 42'49	-16°-17'-51
	-4348 Dec 23 j 20:23	0° $\mathring{B}$		minimum elong	-4339 Jan 31 j 20:12	9° $\mathring{B}$ 42'49	16°18'05
				max. Earth dist.	-4339 Feb 03 j 11:20	9° $\mathring{B}$ 46'43	46.89165 AU
conjunction	-4347 Jan 22 j 18:03	0° $\mathring{B}$ 44'05	-15°-24'-4	retrograde	-4339 May 15 j 14:12	11° $\mathring{B}$ 20'31	
minimum elong	-4347 Jan 22 j 17:57	0° $\mathring{B}$ 44'05	15°24'17	min. Earth dist.	-4339 Aug 04 j 19:12	10° $\mathring{B}$ 20'06	45.05372 AU
max. Earth dist.	-4347 Jan 25 j 15:40	0° $\mathring{B}$ 48'32	45.55836 AU	opposition	-4339 Aug 07 j 07:02	10° $\mathring{B}$ 17'08	-17°-3'-22
retrograde	-4347 May 06 j 11:15	2° $\mathring{B}$ 24'46		direct	-4339 Oct 26 j 21:01	9° $\mathring{B}$ 15'21	
min. Earth dist.	-4347 Jul 26 j 13:06	1° $\mathring{B}$ 23'32	43.72460 AU				
opposition	-4347 Jul 29 j 08:04	1° $\mathring{B}$ 20'08	-16°-10'-12	conjunction	-4338 Feb 02 j 04:59	10° $\mathring{B}$ 48'27	-16°-22'-49
direct	-4347 Oct 17 j 23:12	0° $\mathring{B}$ 17'16		minimum elong	-4338 Feb 02 j 04:58	10° $\mathring{B}$ 48'27	16°23'02
				max. Earth dist.	-4338 Feb 04 j 20:13	10° $\mathring{B}$ 52'20	47.04501 AU
conjunction	-4346 Jan 24 j 03:58	1° $\mathring{B}$ 53'03	-15°-32'-11	retrograde	-4338 May 16 j 21:24	12° $\mathring{B}$ 25'50	
minimum elong	-4346 Jan 24 j 03:51	1° $\mathring{B}$ 53'03	15°32'24	min. Earth dist.	-4338 Aug 06 j 04:40	11° $\mathring{B}$ 25'31	45.20598 AU
max. Earth dist.	-4346 Jan 27 j 00:45	1° $\mathring{B}$ 57'25	45.73705 AU	opposition	-4338 Aug 08 j 15:07	11° $\mathring{B}$ 22'36	-17°-8'-12
retrograde	-4346 May 07 j 22:07	3° $\mathring{B}$ 33'20		direct	-4338 Oct 28 j 06:18	10° $\mathring{B}$ 20'59	
min. Earth dist.	-4346 Jul 28 j 00:46	2° $\mathring{B}$ 32'09	43.90241 AU				
opposition	-4346 Jul 30 j 17:47	2° $\mathring{B}$ 28'52	-16°-18'-18	conjunction	-4337 Feb 03 j 13:32	11° $\mathring{B}$ 53'48	-16°-27'-25
direct	-4346 Oct 19 j 08:26	1° $\mathring{B}$ 26'08		minimum elong	-4337 Feb 03 j 13:30	11° $\mathring{B}$ 53'47	16°27'38
				max. Earth dist.	-4337 Feb 06 j 02:39	11° $\mathring{B}$ 57'33	47.19452 AU
conjunction	-4345 Jan 25 j 13:44	3° $\mathring{B}$ 01'32	-15°-39'-54	retrograde	-4337 May 18 j 04:27	13° $\mathring{B}$ 30'52	
minimum elong	-4345 Jan 25 j 13:39	3° $\mathring{B}$ 01'32	15°40'08	min. Earth dist.	-4337 Aug 07 j 13:04	12° $\mathring{B}$ 30'40	45.35406 AU
max. Earth dist.	-4345 Jan 28 j 10:00	3° $\mathring{B}$ 05'51	45.91149 AU	opposition	-4337 Aug 09 j 23:05	12° $\mathring{B}$ 27'48	-17°-12'-41
retrograde	-4345 May 09 j 07:38	4° $\mathring{B}$ 41'24		direct	-4337 Oct 29 j 15:29	11° $\mathring{B}$ 26'18	
min. Earth dist.	-4345 Jul 29 j 10:33	3° $\mathring{B}$ 40'21	44.07596 AU				
opposition	-4345 Aug 01 j 03:06	3° $\mathring{B}$ 37'05	-16°-25'-59	conjunction	-4336 Feb 04 j 22:09	12° $\mathring{B}$ 58'51	-16°-31'-41
direct	-4345 Oct 20 j 17:53	2° $\mathring{B}$ 34'29		minimum elong	-4336 Feb 04 j 22:09	12° $\mathring{B}$ 58'51	16°31'54
				max. Earth dist.	-4336 Feb 07 j 10:34	13° $\mathring{B}$ 02'33	47.33937 AU
conjunction	-4344 Jan 26 j 23:15	4° $\mathring{B}$ 09'31	-15°-47'-14	retrograde	-4336 May 18 j 11:09	14° $\mathring{B}$ 35'37	
minimum elong	-4344 Jan 26 j 23:10	4° $\mathring{B}$ 09'30	15°47'27	min. Earth dist.	-4336 Aug 07 j 23:16	13° $\mathring{B}$ 35'27	45.49718 AU



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 5

Attention, astronomical year style is used: The year -4336 in astronomical counting style is the year 4337 BCE in historical counting style.

opposition	-4336 Aug 10 j 06:54	13° $\overline{32}$ '41	-17°-16'-49	conjunction	-4327 Feb 13 j 20:40	22° $\overline{27}$ '27	-16°-55'-24
direct	-4336 Oct 30 j 01:08	12° $\overline{31}$ '19		minimum elong	-4327 Feb 13 j 20:43	22° $\overline{27}$ '27	16°55'36
				max. Earth dist.	-4327 Feb 15 j 22:52	22° $\overline{30}$ '27	48.44715 AU
conjunction	-4335 Feb 05 j 06:40	14° $\overline{30}$ '34	-16°-35'-38	retrograde	-4327 May 28 j 06:54	24° $\overline{01}$ '35	
minimum elong	-4335 Feb 05 j 06:38	14° $\overline{30}$ '34	16°35'50	min. Earth dist.	-4327 Aug 17 j 23:07	23° $\overline{01}$ '59	46.59187 AU
max. Earth dist.	-4335 Feb 07 j 17:42	14° $\overline{30}$ '71	47.47928 AU	opposition	-4327 Aug 19 j 22:26	22° $\overline{59}$ '41	-17°-38'-54
retrograde	-4335 May 19 j 18:47	15° $\overline{40}$ '01		direct	-4327 Nov 08 j 18:04	21° $\overline{59}$ '07	
min. Earth dist.	-4335 Aug 09 j 07:21	14° $\overline{39}$ '58	45.63504 AU				
opposition	-4335 Aug 11 j 14:34	14° $\overline{37}$ '14	-17°-20'-37	conjunction	-4326 Feb 15 j 03:48	23° $\overline{29}$ '11	-16°-56'-22
direct	-4335 Oct 31 j 09:54	13° $\overline{35}$ '57		minimum elong	-4326 Feb 15 j 03:51	23° $\overline{29}$ '11	16°56'35
				max. Earth dist.	-4326 Feb 17 j 05:51	23° $\overline{32}$ '09	48.55388 AU
conjunction	-4334 Feb 06 j 14:44	15° $\overline{37}$ '55	-16°-39'-15	retrograde	-4326 May 29 j 11:59	25° $\overline{03}$ '06	
minimum elong	-4334 Feb 06 j 14:44	15° $\overline{37}$ '55	16°39'28	min. Earth dist.	-4326 Aug 19 j 07:41	24° $\overline{03}$ '32	46.69693 AU
max. Earth dist.	-4334 Feb 08 j 23:47	15° $\overline{31}$ '23	47.61391 AU	opposition	-4326 Aug 21 j 04:56	24° $\overline{01}$ '20	-17°-39'-40
retrograde	-4334 May 21 j 05:18	16° $\overline{44}$ '03		direct	-4326 Nov 10 j 02:21	23° $\overline{00}$ '54	
min. Earth dist.	-4334 Aug 10 j 16:45	15° $\overline{44}$ '00	45.76781 AU				
opposition	-4334 Aug 12 j 22:15	15° $\overline{41}$ '22	-17°-24'-6	conjunction	-4325 Feb 16 j 11:09	24° $\overline{30}$ '46	-16°-57'-2
direct	-4334 Nov 01 j 15:41	14° $\overline{40}$ '10		minimum elong	-4325 Feb 16 j 11:13	24° $\overline{30}$ '46	16°57'14
				max. Earth dist.	-4325 Feb 18 j 11:50	24° $\overline{33}$ '40	48.65692 AU
conjunction	-4333 Feb 07 j 22:59	16° $\overline{31}$ '51	-16°-42'-34	retrograde	-4325 May 30 j 17:50	26° $\overline{04}$ '29	
minimum elong	-4333 Feb 07 j 22:59	16° $\overline{31}$ '51	16°42'46	min. Earth dist.	-4325 Aug 20 j 14:07	25° $\overline{05}$ '03	46.79786 AU
max. Earth dist.	-4333 Feb 10 j 07:49	16° $\overline{31}$ '51	47.74366 AU	opposition	-4325 Aug 22 j 11:04	25° $\overline{02}$ '52	-17°-40'-6
retrograde	-4333 May 22 j 12:56	17° $\overline{47}$ '39		direct	-4325 Nov 11 j 10:15	24° $\overline{02}$ '31	
min. Earth dist.	-4333 Aug 12 j 01:28	16° $\overline{47}$ '37	45.89574 AU				
opposition	-4333 Aug 14 j 05:31	16° $\overline{45}$ '04	-17°-27'-16	conjunction	-4324 Feb 17 j 18:22	25° $\overline{32}$ '14	-16°-57'-25
direct	-4333 Nov 02 j 23:11	15° $\overline{43}$ '56		minimum elong	-4324 Feb 17 j 18:25	25° $\overline{32}$ '14	16°57'37
				max. Earth dist.	-4324 Feb 19 j 17:05	25° $\overline{35}$ '00	48.75542 AU
conjunction	-4332 Feb 09 j 06:57	17° $\overline{15}$ '21	-16°-45'-33	retrograde	-4324 May 31 j 02:59	27° $\overline{05}$ '45	
minimum elong	-4332 Feb 09 j 06:58	17° $\overline{15}$ '21	16°45'46	min. Earth dist.	-4324 Aug 20 j 22:31	26° $\overline{06}$ '19	46.89405 AU
max. Earth dist.	-4332 Feb 11 j 13:40	17° $\overline{18}$ '39	47.86902 AU	opposition	-4324 Aug 22 j 17:23	26° $\overline{04}$ '15	-17°-40'-15
retrograde	-4332 May 22 j 20:19	18° $\overline{50}$ '49		direct	-4324 Nov 11 j 15:27	25° $\overline{04}$ '00	
min. Earth dist.	-4332 Aug 12 j 09:00	17° $\overline{50}$ '52	46.01963 AU				
opposition	-4332 Aug 14 j 12:41	17° $\overline{48}$ '20	-17°-30'-4	conjunction	-4323 Feb 18 j 01:33	26° $\overline{33}$ '32	-16°-57'-30
direct	-4332 Nov 03 j 06:18	16° $\overline{47}$ '17		minimum elong	-4323 Feb 18 j 01:38	26° $\overline{33}$ '32	16°57'42
				max. Earth dist.	-4323 Feb 19 j 23:50	26° $\overline{36}$ '16	48.84899 AU
conjunction	-4331 Feb 09 j 14:40	18° $\overline{18}$ '25	-16°-48'-12	retrograde	-4323 Jun 01 j 11:18	28° $\overline{06}$ '49	
minimum elong	-4331 Feb 09 j 14:41	18° $\overline{18}$ '25	16°48'24	min. Earth dist.	-4323 Aug 22 j 05:56	27° $\overline{07}$ '27	46.98492 AU
max. Earth dist.	-4331 Feb 11 j 21:01	18° $\overline{21}$ '41	47.99051 AU	opposition	-4323 Aug 23 j 23:32	27° $\overline{05}$ '26	-17°-40'-8
retrograde	-4331 May 24 j 00:30	19° $\overline{53}$ '35		direct	-4323 Nov 12 j 20:07	26° $\overline{05}$ '16	
min. Earth dist.	-4331 Aug 13 j 17:55	18° $\overline{53}$ '38	46.13993 AU				
opposition	-4331 Aug 15 j 19:46	18° $\overline{51}$ '11	-17°-32'-33	conjunction	-4322 Feb 19 j 08:35	27° $\overline{34}$ '37	-16°-57'-20
direct	-4331 Nov 04 j 16:37	17° $\overline{50}$ '13		minimum elong	-4322 Feb 19 j 08:38	27° $\overline{34}$ '37	16°57'32
				max. Earth dist.	-4322 Feb 21 j 04:17	27° $\overline{37}$ '11	48.93739 AU
conjunction	-4330 Feb 10 j 22:22	19° $\overline{21}$ '06	-16°-50'-30	retrograde	-4322 Jun 02 j 19:44	29° $\overline{07}$ '40	
minimum elong	-4330 Feb 10 j 22:23	19° $\overline{21}$ '06	16°50'44	min. Earth dist.	-4322 Aug 23 j 12:51	28° $\overline{08}$ '20	47.07075 AU
max. Earth dist.	-4330 Feb 13 j 03:51	19° $\overline{24}$ '19	48.10892 AU	opposition	-4322 Aug 25 j 05:34	28° $\overline{06}$ '22	-17°-39'-43
retrograde	-4330 May 25 j 07:14	20° $\overline{55}$ '59		direct	-4322 Nov 14 j 00:35	27° $\overline{06}$ '15	
min. Earth dist.	-4330 Aug 15 j 00:42	19° $\overline{56}$ '09	46.25720 AU				
opposition	-4330 Aug 17 j 02:33	19° $\overline{53}$ '42	-17°-34'-39	conjunction	-4321 Feb 20 j 15:36	28° $\overline{35}$ '25	-16°-56'-53
direct	-4330 Nov 06 j 00:37	18° $\overline{52}$ '49		minimum elong	-4321 Feb 20 j 15:42	28° $\overline{35}$ '25	16°57'05
				max. Earth dist.	-4321 Feb 22 j 10:39	28° $\overline{37}$ '57	49.02077 AU
conjunction	-4329 Feb 12 j 05:50	20° $\overline{23}$ '28	-16°-52'-28		-4321 May 07 j 00:46	0° $\approx$	
minimum elong	-4329 Feb 12 j 05:52	20° $\overline{23}$ '28	16°52'40	retrograde	-4321 Jun 03 j 22:21	0° $\approx$ 08'15	
max. Earth dist.	-4329 Feb 14 j 09:55	20° $\overline{26}$ '35	48.22441 AU		-4321 Jul 01 j 23:56	30° $\overline{R}$ $\overline{3}$	
retrograde	-4329 May 26 j 16:52	21° $\overline{58}$ '05		min. Earth dist.	-4321 Aug 24 j 21:00	29° $\overline{08}$ '52	47.15165 AU
min. Earth dist.	-4329 Aug 16 j 08:53	20° $\overline{58}$ '18	46.37170 AU	opposition	-4321 Aug 26 j 11:32	29° $\overline{07}$ '01	-17°-39'-2
opposition	-4329 Aug 18 j 09:24	20° $\overline{55}$ '55	-17°-36'-25	direct	-4321 Nov 15 j 10:00	28° $\overline{06}$ '57	
direct	-4329 Nov 07 j 05:15	19° $\overline{55}$ '08					
				conjunction	-4320 Feb 21 j 22:31	29° $\overline{35}$ '55	-16°-56'-9
conjunction	-4328 Feb 13 j 13:24	21° $\overline{25}$ '34	-16°-54'-6	minimum elong	-4320 Feb 21 j 22:36	29° $\overline{35}$ '55	16°56'21
minimum elong	-4328 Feb 13 j 13:26	21° $\overline{25}$ '34	16°54'19	max. Earth dist.	-4320 Feb 23 j 16:05	29° $\overline{38}$ '21	49.09969 AU
max. Earth dist.	-4328 Feb 15 j 17:33	21° $\overline{28}$ '40	48.33720 AU		-4320 Mar 10 j 05:46	0° $\approx$	
retrograde	-4328 May 26 j 23:45	22° $\overline{59}$ '56		retrograde	-4320 Jun 04 j 01:59	1° $\approx$ 08'30	
min. Earth dist.	-4328 Aug 16 j 16:16	22° $\overline{00}$ '13	46.48325 AU	min. Earth dist.	-4320 Aug 25 j 02:51	0° $\approx$ 09'12	47.22831 AU
opposition	-4328 Aug 18 j 15:55	21° $\overline{57}$ '54	-17°-37'-50	opposition	-4320 Aug 26 j 17:08	0° $\approx$ 07'20	-17°-38'-4
direct	-4328 Nov 07 j 12:10	20° $\overline{57}$ '13			-4320 Sep 02 j 01:35	30° $\overline{R}$ $\overline{3}$	
				direct	-4320 Nov 15 j 18:43	29° $\overline{07}$ '19	



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 6

Attention, astronomical year style is used: The year -4319 in astronomical counting style is the year 4320 BCE in historical counting style.

	-4319 Jan 26 j 18:27	0°		minimum elong	-4311 Mar 02 j 08:57	8°	16°
				max. Earth dist.	-4311 Mar 03 j 16:09	8°	49.65755 AU
conjunction	-4319 Feb 22 j 05:11	0°	-16°-55'-8	retrograde	-4311 Jun 13 j 10:58	10°	
minimum elong	-4319 Feb 22 j 05:16	0°	16°55'21	opposition	-4311 Sep 04 j 17:31	9°	-17°-15'-53
max. Earth dist.	-4319 Feb 23 j 21:15	0°	49.17461 AU	min. Earth dist.	-4311 Sep 03 j 14:16	9°	47.76575 AU
retrograde	-4319 Jun 05 j 09:31	2°		direct	-4311 Nov 24 j 19:03	8°	
min. Earth dist.	-4319 Aug 26 j 10:22	1°	47.30138 AU				
opposition	-4319 Aug 27 j 22:53	1°	-17°-36'-47	conjunction	-4310 Mar 03 j 15:06	9°	-16°-33'-3
direct	-4319 Nov 17 j 00:15	0°		minimum elong	-4310 Mar 03 j 15:16	9°	16°33'14
				max. Earth dist.	-4310 Mar 04 j 20:37	9°	49.69874 AU
conjunction	-4318 Feb 23 j 11:46	1°	-16°-53'-50	retrograde	-4310 Jun 14 j 14:23	11°	
minimum elong	-4318 Feb 23 j 11:52	1°	16°54'01	opposition	-4310 Sep 05 j 22:34	9°	-17°-12'-5
max. Earth dist.	-4318 Feb 25 j 03:44	1°	49.24627 AU	min. Earth dist.	-4310 Sep 04 j 19:52	10°	47.80354 AU
retrograde	-4318 Jun 06 j 15:38	3°		direct	-4310 Nov 26 j 02:49	9°	
min. Earth dist.	-4318 Aug 27 j 16:32	2°	47.37117 AU				
opposition	-4318 Aug 29 j 04:26	2°	-17°-35'-12	conjunction	-4309 Mar 04 j 21:24	10°	-16°-29'-19
direct	-4318 Nov 18 j 06:14	1°		minimum elong	-4309 Mar 04 j 21:32	10°	16°29'29
				max. Earth dist.	-4309 Mar 06 j 00:55	10°	49.73454 AU
conjunction	-4317 Feb 24 j 18:17	2°	-16°-52'-13	retrograde	-4309 Jun 15 j 20:32	11°	
minimum elong	-4317 Feb 24 j 18:23	2°	16°52'25	min. Earth dist.	-4309 Sep 06 j 03:08	10°	47.83622 AU
max. Earth dist.	-4317 Feb 26 j 08:14	2°	49.31494 AU	opposition	-4309 Sep 07 j 03:32	10°	-17°-8'-2
retrograde	-4317 Jun 07 j 23:49	4°		direct	-4309 Nov 27 j 08:30	9°	
min. Earth dist.	-4317 Aug 28 j 22:35	3°	47.43814 AU				
opposition	-4317 Aug 30 j 09:50	3°	-17°-33'-18	conjunction	-4308 Mar 05 j 03:46	11°	-16°-25'-19
direct	-4317 Nov 19 j 09:25	2°		minimum elong	-4308 Mar 05 j 03:55	11°	16°25'30
				max. Earth dist.	-4308 Mar 06 j 06:42	11°	49.76556 AU
conjunction	-4316 Feb 26 j 00:51	3°	-16°-50'-19	retrograde	-4308 Jun 16 j 02:01	12°	
minimum elong	-4316 Feb 26 j 00:58	3°	16°50'30	min. Earth dist.	-4308 Sep 06 j 08:51	11°	47.86421 AU
max. Earth dist.	-4316 Feb 27 j 14:40	3°	49.38074 AU	opposition	-4308 Sep 07 j 08:25	11°	-17°-3'-43
retrograde	-4316 Jun 08 j 04:42	5°		direct	-4308 Nov 27 j 13:57	10°	
min. Earth dist.	-4316 Aug 29 j 05:46	4°	47.50216 AU				
opposition	-4316 Aug 30 j 15:20	4°	-17°-31'-7	conjunction	-4307 Mar 06 j 09:40	12°	-16°-21'-5
direct	-4316 Nov 19 j 16:02	3°		minimum elong	-4307 Mar 06 j 09:49	12°	16°21'15
				max. Earth dist.	-4307 Mar 07 j 10:21	12°	49.79226 AU
conjunction	-4315 Feb 26 j 07:09	4°	-16°-48'-7	retrograde	-4307 Jun 17 j 10:12	13°	
minimum elong	-4315 Feb 26 j 07:15	4°	16°48'19	opposition	-4307 Sep 08 j 13:17	12°	-16°-59'-9
max. Earth dist.	-4315 Feb 27 j 19:43	4°	49.44376 AU	min. Earth dist.	-4307 Sep 07 j 14:43	12°	47.88829 AU
retrograde	-4315 Jun 09 j 08:38	6°		direct	-4307 Nov 28 j 16:22	11°	
min. Earth dist.	-4315 Aug 30 j 11:01	5°	47.56315 AU				
opposition	-4315 Aug 31 j 20:38	5°	-17°-28'-37	conjunction	-4306 Mar 07 j 15:48	13°	-16°-16'-34
direct	-4315 Nov 20 j 22:59	4°		minimum elong	-4306 Mar 07 j 15:58	13°	16°16'45
				max. Earth dist.	-4306 Mar 08 j 16:12	13°	49.81521 AU
conjunction	-4314 Feb 27 j 13:29	5°	-16°-45'-37	retrograde	-4306 Jun 18 j 14:50	14°	
minimum elong	-4314 Feb 27 j 13:37	5°	16°45'49	opposition	-4306 Sep 09 j 18:03	13°	-16°-54'-18
max. Earth dist.	-4314 Mar 01 j 00:34	5°	49.50351 AU	min. Earth dist.	-4306 Sep 08 j 21:14	13°	47.90877 AU
retrograde	-4314 Jun 10 j 14:56	7°		direct	-4306 Nov 29 j 22:10	12°	
min. Earth dist.	-4314 Aug 31 j 18:18	6°	47.62071 AU				
opposition	-4314 Sep 02 j 01:57	6°	-17°-25'-49	conjunction	-4305 Mar 08 j 21:52	14°	-16°-11'-48
direct	-4314 Nov 22 j 04:56	5°		minimum elong	-4305 Mar 08 j 22:02	14°	16°11'57
				max. Earth dist.	-4305 Mar 09 j 20:46	14°	49.83497 AU
conjunction	-4313 Feb 28 j 20:00	6°	-16°-42'-51		-4305 Apr 07 j 04:49	15°	
minimum elong	-4313 Feb 28 j 20:07	6°	16°43'03	retrograde	-4305 Jun 19 j 18:25	15°	
max. Earth dist.	-4313 Mar 02 j 06:44	6°	49.55959 AU		-4305 Sep 03 j 06:09	15°	
retrograde	-4313 Jun 11 j 22:08	8°		opposition	-4305 Sep 10 j 22:44	14°	-16°-49'-11
min. Earth dist.	-4313 Sep 02 j 00:33	7°	47.67402 AU	min. Earth dist.	-4305 Sep 10 j 01:54	14°	47.92607 AU
opposition	-4313 Sep 03 j 07:09	7°	-17°-22'-46	direct	-4305 Dec 01 j 04:20	13°	
direct	-4313 Nov 23 j 09:37	6°			-4304 Feb 24 j 04:18	15°	
conjunction	-4312 Mar 01 j 02:23	7°	-16°-39'-50	conjunction	-4304 Mar 09 j 03:49	15°	-16°-6'-45
minimum elong	-4312 Mar 01 j 02:31	7°	16°40'01	minimum elong	-4304 Mar 09 j 03:58	15°	16°06'55
max. Earth dist.	-4312 Mar 02 j 10:32	7°	49.61112 AU	max. Earth dist.	-4304 Mar 10 j 01:15	15°	49.85151 AU
retrograde	-4312 Jun 12 j 06:53	9°		retrograde	-4304 Jun 19 j 22:46	16°	
min. Earth dist.	-4312 Sep 02 j 06:49	8°	47.72257 AU	min. Earth dist.	-4304 Sep 10 j 08:33	15°	47.94030 AU
opposition	-4312 Sep 03 j 12:16	8°	-17°-19'-27	opposition	-4304 Sep 11 j 03:28	15°	-16°-43'-47
direct	-4312 Nov 23 j 12:14	7°			-4304 Oct 31 j 15:04	15°	
				direct	-4304 Dec 01 j 10:57	14°	
conjunction	-4311 Mar 02 j 08:50	8°	-16°-36'-34		-4304 Dec 31 j 23:37	15°	



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 7

Attention, astronomical year style is used: The year -4303 in astronomical counting style is the year 4304 BCE in historical counting style.

conjunction	-4303 Mar 10 j 09:50	16°≈16'57	-16°-1'-26	retrograde	-4295 Jun 29 j 01:12	25°≈28'45	
minimum elong	-4303 Mar 10 j 10:01	16°≈16'58	16°01'35	opposition	-4295 Sep 19 j 20:29	24°≈28'57	-15°-43'-47
max. Earth dist.	-4303 Mar 11 j 07:07	16°≈18'10	49.86514 AU	min. Earth dist.	-4295 Sep 19 j 12:37	24°≈29'19	47.87637 AU
retrograde	-4303 Jun 21 j 04:54	17°≈47'03		direct	-4295 Dec 10 j 05:53	23°≈29'34	
opposition	-4303 Sep 12 j 08:06	16°≈47'03	-16°-38'-6				
min. Earth dist.	-4303 Sep 11 j 13:40	16°≈47'56	47.95133 AU	conjunction	-4294 Mar 19 j 15:24	24°≈56'33	-15°-2'-38
direct	-4303 Dec 02 j 15:49	15°≈47'44		minimum elong	-4294 Mar 19 j 15:35	24°≈56'34	15°02'45
				max. Earth dist.	-4294 Mar 19 j 22:44	24°≈56'58	49.79065 AU
conjunction	-4302 Mar 11 j 15:36	17°≈14'51	-15°-55'-51	retrograde	-4294 Jun 30 j 04:42	26°≈26'03	
minimum elong	-4302 Mar 11 j 15:46	17°≈14'52	15°56'01	opposition	-4294 Sep 21 j 00:59	25°≈26'14	-15°-35'-53
max. Earth dist.	-4302 Mar 12 j 10:37	17°≈15'56	49.87548 AU	min. Earth dist.	-4294 Sep 20 j 19:07	25°≈26'31	47.84689 AU
retrograde	-4302 Jun 22 j 14:14	18°≈44'53		direct	-4294 Dec 11 j 12:23	24°≈26'50	
opposition	-4302 Sep 13 j 12:45	17°≈44'57	-16°-32'-9				
min. Earth dist.	-4302 Sep 12 j 19:25	17°≈45'46	47.95891 AU	conjunction	-4293 Mar 20 j 21:23	25°≈53'48	-14°-54'-53
direct	-4302 Dec 03 j 16:45	16°≈45'39		minimum elong	-4293 Mar 20 j 21:35	25°≈53'49	14°55'01
				max. Earth dist.	-4293 Mar 21 j 04:28	25°≈54'12	49.76082 AU
conjunction	-4301 Mar 12 j 21:43	18°≈12'46	-15°-50'-1	retrograde	-4293 Jul 01 j 08:55	27°≈23'16	
minimum elong	-4301 Mar 12 j 21:55	18°≈12'47	15°50'10	opposition	-4293 Sep 22 j 05:13	26°≈23'28	-15°-27'-43
max. Earth dist.	-4301 Mar 13 j 16:14	18°≈13'49	49.88196 AU	min. Earth dist.	-4293 Sep 21 j 23:47	26°≈23'43	47.81428 AU
retrograde	-4301 Jun 23 j 19:30	19°≈42'44		direct	-4293 Dec 12 j 18:19	25°≈24'02	
opposition	-4301 Sep 14 j 17:18	18°≈42'51	-16°-25'-57				
min. Earth dist.	-4301 Sep 14 j 01:59	18°≈43'35	47.96222 AU	conjunction	-4292 Mar 21 j 03:10	26°≈51'02	-14°-46'-53
direct	-4301 Dec 04 j 21:38	17°≈43'35		minimum elong	-4292 Mar 21 j 03:22	26°≈51'03	14°47'00
				max. Earth dist.	-4292 Mar 21 j 08:02	26°≈51'19	49.72807 AU
conjunction	-4300 Mar 13 j 03:48	19°≈10'41	-15°-43'-56	retrograde	-4292 Jul 01 j 17:33	28°≈20'29	
minimum elong	-4300 Mar 13 j 03:58	19°≈10'42	15°44'05	opposition	-4292 Sep 22 j 09:39	27°≈20'42	-15°-19'-17
max. Earth dist.	-4300 Mar 13 j 20:28	19°≈11'38	49.88405 AU	min. Earth dist.	-4292 Sep 22 j 05:08	27°≈20'54	47.77892 AU
retrograde	-4300 Jun 23 j 22:40	20°≈40'35		direct	-4292 Dec 12 j 19:33	26°≈21'15	
opposition	-4300 Sep 14 j 21:53	19°≈40'45	-16°-19'-30				
min. Earth dist.	-4300 Sep 14 j 07:09	19°≈41'27	47.96077 AU	conjunction	-4291 Mar 22 j 08:56	27°≈48'18	-14°-38'-37
direct	-4300 Dec 05 j 04:41	18°≈41'30		minimum elong	-4291 Mar 22 j 09:08	27°≈48'19	14°38'46
				max. Earth dist.	-4291 Mar 22 j 13:39	27°≈48'34	49.69249 AU
conjunction	-4299 Mar 14 j 09:40	20°≈08'35	-15°-37'-37	retrograde	-4291 Jul 02 j 23:30	29°≈17'46	
minimum elong	-4299 Mar 14 j 09:52	20°≈08'36	15°37'47	opposition	-4291 Sep 23 j 14:08	28°≈18'00	-15°-10'-35
max. Earth dist.	-4299 Mar 15 j 00:22	20°≈09'26	49.88095 AU	min. Earth dist.	-4291 Sep 23 j 11:08	28°≈18'08	47.74058 AU
retrograde	-4299 Jun 25 j 02:46	21°≈38'26		direct	-4291 Dec 13 j 23:26	27°≈18'34	
opposition	-4299 Sep 16 j 02:38	20°≈38'37	-16°-12'-50				
min. Earth dist.	-4299 Sep 15 j 14:15	20°≈39'12	47.95401 AU	conjunction	-4290 Mar 23 j 14:49	28°≈45'40	-14°-30'-5
direct	-4299 Dec 06 j 11:17	19°≈39'22		minimum elong	-4290 Mar 23 j 15:02	28°≈45'41	14°30'13
				max. Earth dist.	-4290 Mar 23 j 18:06	28°≈45'52	49.65405 AU
conjunction	-4298 Mar 15 j 15:49	21°≈06'26	-15°-31'-5		-4290 May 26 j 18:43	0°≈	
minimum elong	-4298 Mar 15 j 16:00	21°≈06'26	15°31'14	retrograde	-4290 Jul 04 j 03:22	0°≈15'08	
max. Earth dist.	-4298 Mar 16 j 05:39	21°≈07'13	49.87257 AU		-4290 Aug 11 j 15:06	30°≈	
retrograde	-4298 Jun 26 j 07:24	22°≈36'12		opposition	-4290 Sep 24 j 18:24	29°≈15'25	-15°-1'-36
opposition	-4298 Sep 17 j 07:07	21°≈36'24	-16°-5'-56	min. Earth dist.	-4290 Sep 24 j 15:39	29°≈15'33	47.69911 AU
min. Earth dist.	-4298 Sep 16 j 19:41	21°≈36'57	47.94177 AU	direct	-4290 Dec 15 j 05:21	28°≈15'59	
direct	-4298 Dec 07 j 17:15	20°≈37'08					
				conjunction	-4289 Mar 24 j 20:48	29°≈43'11	-14°-21'-19
conjunction	-4297 Mar 16 j 21:48	22°≈04'09	-15°-24'-20	minimum elong	-4289 Mar 24 j 21:00	29°≈43'12	14°21'27
minimum elong	-4297 Mar 16 j 22:00	22°≈04'10	15°24'29	max. Earth dist.	-4289 Mar 24 j 22:20	29°≈43'16	49.61202 AU
max. Earth dist.	-4297 Mar 17 j 08:59	22°≈04'48	49.85888 AU		-4289 Apr 06 j 06:34	0°≈	
retrograde	-4297 Jun 27 j 15:22	23°≈33'51		retrograde	-4289 Jul 05 j 07:21	1°≈12'41	
opposition	-4297 Sep 18 j 11:41	22°≈34'04	-15°-58'-47	opposition	-4289 Sep 25 j 22:55	0°≈13'00	-14°-52'-22
min. Earth dist.	-4297 Sep 18 j 01:45	22°≈34'32	47.92445 AU	min. Earth dist.	-4289 Sep 25 j 22:24	0°≈13'01	47.65379 AU
direct	-4297 Dec 08 j 19:59	21°≈34'46			-4289 Oct 07 j 09:15	30°≈	
				direct	-4289 Dec 16 j 11:49	29°≈13'34	
conjunction	-4296 Mar 17 j 03:49	23°≈01'46	-15°-17'-20		-4288 Feb 22 j 23:39	0°≈	
minimum elong	-4296 Mar 17 j 04:00	23°≈01'46	15°17'29				
max. Earth dist.	-4296 Mar 17 j 14:18	23°≈02'21	49.84019 AU	conjunction	-4288 Mar 25 j 02:53	0°≈40'51	-14°-12'-18
retrograde	-4296 Jun 27 j 20:45	24°≈31'22		minimum elong	-4288 Mar 25 j 03:07	0°≈40'52	14°12'25
opposition	-4296 Sep 18 j 16:09	23°≈31'34	-15°-51'-25	max. Earth dist.	-4288 Mar 25 j 03:51	0°≈40'54	49.56588 AU
min. Earth dist.	-4296 Sep 18 j 08:03	23°≈31'57	47.90237 AU	retrograde	-4288 Jul 05 j 12:08	2°≈10'24	
direct	-4296 Dec 09 j 00:42	22°≈32'14		opposition	-4288 Sep 26 j 03:17	1°≈10'44	-14°-42'-54
				min. Earth dist.	-4288 Sep 26 j 03:32	1°≈10'43	47.60388 AU
conjunction	-4295 Mar 18 j 09:40	23°≈59'13	-15°-10'-6	direct	-4288 Dec 16 j 17:27	0°≈11'18	
minimum elong	-4295 Mar 18 j 09:52	23°≈59'14	15°10'16				
max. Earth dist.	-4295 Mar 18 j 18:31	23°≈59'43	49.81731 AU	conjunction	-4287 Mar 26 j 08:54	1°≈38'40	-14°-3'-2



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 8

Attention, astronomical year style is used: The year -4287 in astronomical counting style is the year 4288 BCE in historical counting style.

minimum elong	-4287 Mar 26 j 09:06	1° $\text{♂}$ 38'41	14°03'10	opposition	-4279 Oct 04 j 20:17	9° $\text{♂}$ 52'37	-13°-6'-40
max. Earth dist.	-4287 Mar 26 j 07:10	1° $\text{♂}$ 38'34	49.51492 AU	min. Earth dist.	-4279 Oct 05 j 08:10	9° $\text{♂}$ 52'03	46.95105 AU
retrograde	-4287 Jul 06 j 20:22	3° $\text{♂}$ 08'16		direct	-4279 Dec 25 j 12:21	8° $\text{♂}$ 52'38	
opposition	-4287 Sep 27 j 07:49	2° $\text{♂}$ 08'36	-14°-33'-12				
min. Earth dist.	-4287 Sep 27 j 09:42	2° $\text{♂}$ 08'31	47.54904 AU	conjunction	-4278 Apr 04 j 16:31	10° $\text{♂}$ 20'53	-12°-29'-3
direct	-4287 Dec 17 j 19:43	1° $\text{♂}$ 09'09		minimum elong	-4278 Apr 04 j 16:44	10° $\text{♂}$ 20'54	12°29'09
				max. Earth dist.	-4278 Apr 04 j 03:42	10° $\text{♂}$ 20'09	48.85774 AU
conjunction	-4286 Mar 27 j 15:04	2° $\text{♂}$ 36'36	-13°-53'-34	retrograde	-4278 Jul 15 j 19:10	11° $\text{♂}$ 50'54	
minimum elong	-4286 Mar 27 j 15:18	2° $\text{♂}$ 36'36	13°53'41	opposition	-4278 Oct 06 j 00:58	10° $\text{♂}$ 50'58	-12°-54'-40
max. Earth dist.	-4286 Mar 27 j 12:29	2° $\text{♂}$ 36'27	49.45875 AU	min. Earth dist.	-4278 Oct 06 j 13:15	10° $\text{♂}$ 50'22	46.86144 AU
retrograde	-4286 Jul 08 j 03:04	4° $\text{♂}$ 06'13		direct	-4278 Dec 26 j 19:21	9° $\text{♂}$ 50'56	
opposition	-4286 Sep 28 j 12:25	3° $\text{♂}$ 06'33	-14°-23'-15				
min. Earth dist.	-4286 Sep 28 j 16:13	3° $\text{♂}$ 06'22	47.48876 AU	conjunction	-4277 Apr 05 j 22:55	11° $\text{♂}$ 19'20	-12°-17'-20
direct	-4286 Dec 18 j 23:37	2° $\text{♂}$ 07'03		minimum elong	-4277 Apr 05 j 23:09	11° $\text{♂}$ 19'21	12°17'25
				max. Earth dist.	-4277 Apr 05 j 07:43	11° $\text{♂}$ 18'28	48.76792 AU
conjunction	-4285 Mar 28 j 21:16	3° $\text{♂}$ 34'35	-13°-43'-51	retrograde	-4277 Jul 17 j 02:51	12° $\text{♂}$ 49'29	
minimum elong	-4285 Mar 28 j 21:28	3° $\text{♂}$ 34'35	13°43'58	opposition	-4277 Oct 07 j 05:40	11° $\text{♂}$ 49'32	-12°-42'-23
max. Earth dist.	-4285 Mar 28 j 16:36	3° $\text{♂}$ 34'19	49.39741 AU	min. Earth dist.	-4277 Oct 07 j 19:34	11° $\text{♂}$ 48'52	46.76817 AU
retrograde	-4285 Jul 09 j 09:03	5° $\text{♂}$ 04'12		direct	-4277 Dec 27 j 22:32	10° $\text{♂}$ 49'27	
opposition	-4285 Sep 29 j 16:47	4° $\text{♂}$ 04'31	-14°-13'-5				
min. Earth dist.	-4285 Sep 29 j 21:13	4° $\text{♂}$ 04'19	47.42343 AU	conjunction	-4276 Apr 06 j 05:36	12° $\text{♂}$ 18'02	-12°-5'-22
direct	-4285 Dec 20 j 04:30	3° $\text{♂}$ 04'57		minimum elong	-4276 Apr 06 j 05:48	12° $\text{♂}$ 18'03	12°05'27
				max. Earth dist.	-4276 Apr 05 j 13:43	12° $\text{♂}$ 17'07	48.67396 AU
conjunction	-4284 Mar 29 j 03:26	4° $\text{♂}$ 32'34	-13°-33'-55	retrograde	-4276 Jul 17 j 10:04	13° $\text{♂}$ 48'19	
minimum elong	-4284 Mar 29 j 03:40	4° $\text{♂}$ 32'35	13°34'03	opposition	-4276 Oct 07 j 10:36	12° $\text{♂}$ 48'20	-12°-29'-51
max. Earth dist.	-4284 Mar 28 j 20:57	4° $\text{♂}$ 32'12	49.33106 AU	min. Earth dist.	-4276 Oct 08 j 02:13	12° $\text{♂}$ 47'35	46.67034 AU
retrograde	-4284 Jul 09 j 12:16	6° $\text{♂}$ 02'14		direct	-4276 Dec 28 j 02:39	11° $\text{♂}$ 48'11	
opposition	-4284 Sep 29 j 21:25	5° $\text{♂}$ 02'30	-14°-2'-40				
min. Earth dist.	-4284 Sep 30 j 04:10	5° $\text{♂}$ 02'11	47.35343 AU	conjunction	-4275 Apr 07 j 12:06	13° $\text{♂}$ 16'58	-11°-53'-9
direct	-4284 Dec 20 j 11:14	4° $\text{♂}$ 02'52		minimum elong	-4275 Apr 07 j 12:20	13° $\text{♂}$ 16'59	11°53'14
				max. Earth dist.	-4275 Apr 06 j 18:15	13° $\text{♂}$ 15'56	48.57530 AU
conjunction	-4283 Mar 30 j 09:29	5° $\text{♂}$ 30'32	-13°-23'-45	retrograde	-4275 Jul 18 j 17:49	14° $\text{♂}$ 47'22	
minimum elong	-4283 Mar 30 j 09:42	5° $\text{♂}$ 30'33	13°23'51	opposition	-4275 Oct 08 j 15:33	13° $\text{♂}$ 47'21	-12°-17'-5
max. Earth dist.	-4283 Mar 30 j 02:31	5° $\text{♂}$ 30'09	49.26044 AU	min. Earth dist.	-4275 Oct 09 j 07:52	13° $\text{♂}$ 46'34	46.56751 AU
retrograde	-4283 Jul 10 j 14:58	7° $\text{♂}$ 00'14		direct	-4275 Dec 29 j 07:02	12° $\text{♂}$ 47'08	
opposition	-4283 Oct 01 j 01:55	6° $\text{♂}$ 00'28	-13°-52'00				
min. Earth dist.	-4283 Oct 01 j 09:06	6° $\text{♂}$ 00'07	47.27933 AU	conjunction	-4274 Apr 08 j 18:56	14° $\text{♂}$ 16'06	-11°-40'-43
direct	-4283 Dec 21 j 18:49	5° $\text{♂}$ 00'45		minimum elong	-4274 Apr 08 j 19:09	14° $\text{♂}$ 16'07	11°40'47
				max. Earth dist.	-4274 Apr 07 j 23:02	14° $\text{♂}$ 14'58	48.47127 AU
conjunction	-4282 Mar 31 j 15:34	6° $\text{♂}$ 28'30	-13°-13'-20	retrograde	-4274 Jul 19 j 23:05	15° $\text{♂}$ 46'39	
minimum elong	-4282 Mar 31 j 15:47	6° $\text{♂}$ 28'31	13°13'27	opposition	-4274 Oct 09 j 20:36	14° $\text{♂}$ 46'35	-12°-4'-4
max. Earth dist.	-4282 Mar 31 j 06:14	6° $\text{♂}$ 27'59	49.18601 AU	min. Earth dist.	-4274 Oct 10 j 15:30	14° $\text{♂}$ 45'40	46.45927 AU
retrograde	-4282 Jul 11 j 23:06	7° $\text{♂}$ 58'14		direct	-4274 Dec 30 j 13:18	13° $\text{♂}$ 46'16	
opposition	-4282 Oct 02 j 06:22	6° $\text{♂}$ 58'25	-13°-41'-5	max. Earth dist.	-4273 Apr 09 j 05:04	15° $\text{♂}$ 14'13	48.36197 AU
min. Earth dist.	-4282 Oct 02 j 14:52	6° $\text{♂}$ 58'01	47.20178 AU				
direct	-4282 Dec 22 j 21:13	5° $\text{♂}$ 58'38		conjunction	-4273 Apr 10 j 01:56	15° $\text{♂}$ 15'26	-11°-28'-2
				minimum elong	-4273 Apr 10 j 02:10	15° $\text{♂}$ 15'26	11°28'07
conjunction	-4281 Apr 01 j 21:53	7° $\text{♂}$ 26'29	-13°-2'-39	retrograde	-4273 Jul 21 j 02:31	16° $\text{♂}$ 46'06	
minimum elong	-4281 Apr 01 j 22:06	7° $\text{♂}$ 26'30	13°02'45	opposition	-4273 Oct 11 j 01:40	15° $\text{♂}$ 45'58	-11°-50'-48
max. Earth dist.	-4281 Apr 01 j 12:15	7° $\text{♂}$ 25'56	49.10824 AU	min. Earth dist.	-4273 Oct 11 j 21:14	15° $\text{♂}$ 45'01	46.34574 AU
retrograde	-4281 Jul 13 j 05:56	8° $\text{♂}$ 56'16		direct	-4273 Dec 31 j 21:19	14° $\text{♂}$ 45'33	
opposition	-4281 Oct 03 j 11:02	7° $\text{♂}$ 56'24	-13°-29'-53	max. Earth dist.	-4272 Apr 09 j 09:07	16° $\text{♂}$ 13'32	48.24754 AU
min. Earth dist.	-4281 Oct 03 j 20:55	7° $\text{♂}$ 55'56	47.12101 AU				
direct	-4281 Dec 24 j 00:48	6° $\text{♂}$ 56'32		conjunction	-4272 Apr 10 j 08:41	16° $\text{♂}$ 14'54	-11°-15'-7
				minimum elong	-4272 Apr 10 j 08:53	16° $\text{♂}$ 14'54	11°15'11
conjunction	-4280 Apr 02 j 03:58	8° $\text{♂}$ 24'31	-12°-51'-43	retrograde	-4272 Jul 21 j 10:12	17° $\text{♂}$ 45'42	
minimum elong	-4280 Apr 02 j 04:11	8° $\text{♂}$ 24'31	12°51'49	opposition	-4272 Oct 11 j 06:48	16° $\text{♂}$ 45'30	-11°-37'-17
max. Earth dist.	-4280 Apr 01 j 16:54	8° $\text{♂}$ 23'53	49.02758 AU	min. Earth dist.	-4272 Oct 12 j 04:03	16° $\text{♂}$ 44'28	46.22745 AU
retrograde	-4280 Jul 13 j 11:29	9° $\text{♂}$ 54'21		direct	-4271 Jan 01 j 01:13	15° $\text{♂}$ 44'59	
opposition	-4280 Oct 03 j 15:33	8° $\text{♂}$ 54'27	-13°-18'-25				
min. Earth dist.	-4280 Oct 04 j 01:34	8° $\text{♂}$ 53'58	47.03744 AU	conjunction	-4271 Apr 11 j 15:41	17° $\text{♂}$ 14'30	-11°-1'-57
direct	-4280 Dec 24 j 05:35	7° $\text{♂}$ 54'31		minimum elong	-4271 Apr 11 j 15:54	17° $\text{♂}$ 14'31	11°02'02
				max. Earth dist.	-4271 Apr 10 j 15:38	17° $\text{♂}$ 13'07	48.12856 AU
conjunction	-4279 Apr 03 j 10:10	9° $\text{♂}$ 22'37	-12°-40'-31	retrograde	-4271 Jul 22 j 17:38	18° $\text{♂}$ 45'28	
minimum elong	-4279 Apr 03 j 10:24	9° $\text{♂}$ 22'38	12°40'37	opposition	-4271 Oct 12 j 11:57	17° $\text{♂}$ 45'10	-11°-23'-30
max. Earth dist.	-4279 Apr 02 j 21:38	9° $\text{♂}$ 21'54	48.94407 AU	min. Earth dist.	-4271 Oct 13 j 10:44	17° $\text{♂}$ 44'04	46.10486 AU
retrograde	-4279 Jul 14 j 15:26	10° $\text{♂}$ 52'33		direct	-4270 Jan 02 j 05:09	16° $\text{♂}$ 44'32	



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 9

Attention, astronomical year style is used: The year -4270 in astronomical counting style is the year 4271 BCE in historical counting style.

conjunction	-4270 Apr 12 j 22:35	18° <del>11</del> 14'16	-10°-48'-32	retrograde	-4262 Aug 01 j 05:39	27° <del>11</del> 54'14	
minimum elong	-4270 Apr 12 j 22:48	18° <del>11</del> 14'16	10°48'36	opposition	-4262 Oct 21 j 14:37	26° <del>11</del> 53'12	-9°-6'-54
max. Earth dist.	-4270 Apr 11 j 20:46	18° <del>11</del> 12'46	48.00573 AU	min. Earth dist.	-4262 Oct 22 j 23:46	26° <del>11</del> 51'33	44.85472 AU
retrograde	-4270 Jul 24 j 01:16	19° <del>11</del> 45'22		direct	-4261 Jan 11 j 12:35	25° <del>11</del> 51'29	
opposition	-4270 Oct 13 j 17:07	18° <del>11</del> 44'59	-11°-9'-28	max. Earth dist.	-4261 Apr 21 j 04:44	27° <del>11</del> 21'29	46.75270 AU
min. Earth dist.	-4270 Oct 14 j 16:18	18° <del>11</del> 43'51	45.97867 AU				
direct	-4269 Jan 03 j 09:35	17° <del>11</del> 44'13		conjunction	-4261 Apr 22 j 18:15	27° <del>11</del> 23'43	-8°-35'-42
max. Earth dist.	-4269 Apr 13 j 02:19	19° <del>11</del> 12'36	47.87933 AU	minimum elong	-4261 Apr 22 j 18:26	27° <del>11</del> 23'43	8°35'44
				retrograde	-4261 Aug 02 j 12:53	28° <del>11</del> 56'49	
conjunction	-4269 Apr 14 j 05:40	19° <del>11</del> 14'11	-10°-34'-51	opposition	-4261 Oct 22 j 20:50	27° <del>11</del> 55'38	-8°-50'-20
minimum elong	-4269 Apr 14 j 05:53	19° <del>11</del> 14'12	10°34'55	min. Earth dist.	-4261 Oct 24 j 07:28	27° <del>11</del> 53'55	44.69522 AU
retrograde	-4269 Jul 25 j 05:58	20° <del>11</del> 45'27		direct	-4260 Jan 12 j 18:43	26° <del>11</del> 53'45	
opposition	-4269 Oct 14 j 22:27	19° <del>11</del> 44'59	-10°-55'-8	max. Earth dist.	-4260 Apr 21 j 10:45	28° <del>11</del> 23'56	46.59250 AU
min. Earth dist.	-4269 Oct 15 j 23:35	19° <del>11</del> 43'45	45.84927 AU				
direct	-4268 Jan 04 j 17:29	18° <del>11</del> 44'06		conjunction	-4260 Apr 23 j 02:24	28° <del>11</del> 26'17	-8°-19'-38
max. Earth dist.	-4268 Apr 13 j 09:14	20° <del>11</del> 12'41	47.75010 AU	minimum elong	-4260 Apr 23 j 02:35	28° <del>11</del> 26'18	8°19'40
				retrograde	-4260 Aug 02 j 22:36	29° <del>11</del> 59'39	
conjunction	-4268 Apr 14 j 12:50	20° <del>11</del> 14'18	-10°-20'-54	opposition	-4260 Oct 23 j 03:09	28° <del>11</del> 58'20	-8°-33'-30
minimum elong	-4268 Apr 14 j 13:02	20° <del>11</del> 14'18	10°20'57	min. Earth dist.	-4260 Oct 24 j 14:30	28° <del>11</del> 56'34	44.53139 AU
retrograde	-4268 Jul 25 j 09:30	21° <del>11</del> 45'44		direct	-4259 Jan 12 j 23:07	27° <del>11</del> 56'15	
opposition	-4268 Oct 15 j 03:50	20° <del>11</del> 45'11	-10°-40'-31	max. Earth dist.	-4259 Apr 22 j 17:28	29° <del>11</del> 26'40	46.42796 AU
min. Earth dist.	-4268 Oct 16 j 05:02	20° <del>11</del> 43'57	45.71710 AU				
direct	-4267 Jan 05 j 01:58	19° <del>11</del> 44'12		conjunction	-4259 Apr 24 j 10:36	29° <del>11</del> 29'06	-8°-3'-17
				minimum elong	-4259 Apr 24 j 10:47	29° <del>11</del> 29'07	8°03'19
conjunction	-4267 Apr 15 j 19:48	21° <del>11</del> 14'39	-10°-6'-41		-4259 May 16 j 10:18	0° <del>11</del> 00'00	
minimum elong	-4267 Apr 15 j 20:00	21° <del>11</del> 14'39	10°06'45	retrograde	-4259 Aug 04 j 06:23	1° <del>11</del> 02'43	
max. Earth dist.	-4267 Apr 14 j 14:04	21° <del>11</del> 12'55	47.61818 AU	opposition	-4259 Oct 24 j 09:42	0° <del>11</del> 01'15	-8°-16'-23
retrograde	-4267 Jul 26 j 17:08	22° <del>11</del> 46'18			-4259 Oct 25 j 10:46	30° <del>11</del> 00'00	
opposition	-4267 Oct 16 j 09:24	21° <del>11</del> 45'41	-10°-25'-37	min. Earth dist.	-4259 Oct 25 j 23:07	29° <del>11</del> 59'23	44.36355 AU
min. Earth dist.	-4267 Oct 17 j 12:00	21° <del>11</del> 44'22	45.58237 AU	direct	-4258 Jan 14 j 06:41	28° <del>11</del> 58'59	
direct	-4266 Jan 06 j 06:27	20° <del>11</del> 44'35			-4258 Apr 02 j 21:13	0° <del>11</del> 00'00	
max. Earth dist.	-4266 Apr 15 j 21:18	22° <del>11</del> 13'32	47.48356 AU	max. Earth dist.	-4258 Apr 24 j 01:25	0° <del>11</del> 29'41	46.25984 AU
conjunction	-4266 Apr 17 j 03:14	22° <del>11</del> 15'17	-9°-52'-11	conjunction	-4258 Apr 25 j 19:05	0° <del>11</del> 32'11	-7°-46'-41
minimum elong	-4266 Apr 17 j 03:27	22° <del>11</del> 15'18	9°52'14	minimum elong	-4258 Apr 25 j 19:16	0° <del>11</del> 32'11	7°46'42
retrograde	-4266 Jul 28 j 00:42	23° <del>11</del> 47'11		retrograde	-4258 Aug 05 j 12:22	2° <del>11</del> 06'03	
opposition	-4266 Oct 17 j 14:57	22° <del>11</del> 46'29	-10°-10'-26	opposition	-4258 Oct 25 j 16:06	1° <del>11</del> 04'26	-7°-58'-58
min. Earth dist.	-4266 Oct 18 j 18:42	22° <del>11</del> 45'07	45.44470 AU	min. Earth dist.	-4258 Oct 27 j 05:46	1° <del>11</del> 02'33	44.19237 AU
direct	-4265 Jan 07 j 11:24	21° <del>11</del> 45'17		direct	-4257 Jan 15 j 16:03	0° <del>11</del> 01'59	
max. Earth dist.	-4265 Apr 17 j 03:02	23° <del>11</del> 14'25	47.34594 AU	max. Earth dist.	-4257 Apr 25 j 07:43	1° <del>11</del> 32'53	46.08855 AU
conjunction	-4265 Apr 18 j 10:43	23° <del>11</del> 16'17	-9°-37'-25	conjunction	-4257 Apr 27 j 03:38	1° <del>11</del> 35'31	-7°-29'-47
minimum elong	-4265 Apr 18 j 10:55	23° <del>11</del> 16'17	9°37'28	minimum elong	-4257 Apr 27 j 03:49	1° <del>11</del> 35'32	7°29'48
retrograde	-4265 Jul 29 j 10:52	24° <del>11</del> 48'24		retrograde	-4257 Aug 06 j 20:06	3° <del>11</del> 09'42	
opposition	-4265 Oct 18 j 20:36	23° <del>11</del> 47'38	-9°-54'-58	opposition	-4257 Oct 26 j 22:54	2° <del>11</del> 07'55	-7°-41'-15
min. Earth dist.	-4265 Oct 20 j 00:58	23° <del>11</del> 46'14	45.30379 AU	min. Earth dist.	-4257 Oct 28 j 14:11	2° <del>11</del> 05'57	44.01846 AU
direct	-4264 Jan 08 j 14:51	22° <del>11</del> 46'19		direct	-4256 Jan 16 j 23:01	1° <del>11</del> 05'17	
max. Earth dist.	-4264 Apr 17 j 09:05	24° <del>11</del> 15'41	47.20450 AU	max. Earth dist.	-4256 Apr 25 j 16:21	2° <del>11</del> 36'33	45.91465 AU
conjunction	-4264 Apr 18 j 18:17	24° <del>11</del> 17'38	-9°-22'-22	conjunction	-4256 Apr 27 j 12:17	2° <del>11</del> 39'11	-7°-12'-37
minimum elong	-4264 Apr 18 j 18:30	24° <del>11</del> 17'39	9°22'25	minimum elong	-4256 Apr 27 j 12:28	2° <del>11</del> 39'12	7°12'38
retrograde	-4264 Jul 29 j 19:02	25° <del>11</del> 50'00		retrograde	-4256 Aug 07 j 02:54	4° <del>11</del> 13'42	
opposition	-4264 Oct 19 j 02:33	24° <del>11</del> 49'09	-9°-39'-13	opposition	-4256 Oct 27 j 05:49	3° <del>11</del> 11'47	-7°-23'-14
min. Earth dist.	-4264 Oct 20 j 09:12	24° <del>11</del> 47'39	45.15879 AU	min. Earth dist.	-4256 Oct 28 j 21:44	3° <del>11</del> 09'46	43.84208 AU
direct	-4263 Jan 08 j 20:32	23° <del>11</del> 47'43		direct	-4255 Jan 17 j 06:43	2° <del>11</del> 08'58	
max. Earth dist.	-4263 Apr 18 j 16:02	25° <del>11</del> 17'20	47.05882 AU	max. Earth dist.	-4255 Apr 26 j 23:28	3° <del>11</del> 40'31	45.73862 AU
conjunction	-4263 Apr 20 j 02:07	25° <del>11</del> 19'21	-9°-7'-4	conjunction	-4255 Apr 28 j 21:02	3° <del>11</del> 43'16	-6°-55'-9
minimum elong	-4263 Apr 20 j 02:18	25° <del>11</del> 19'21	9°07'07	minimum elong	-4255 Apr 28 j 21:12	3° <del>11</del> 43'16	6°55'09
retrograde	-4263 Jul 30 j 23:06	26° <del>11</del> 51'57		retrograde	-4255 Aug 08 j 13:58	5° <del>11</del> 18'06	
opposition	-4263 Oct 20 j 08:26	25° <del>11</del> 51'01	-9°-23'-11	opposition	-4255 Oct 28 j 12:45	4° <del>11</del> 16'04	-7°-4'-54
min. Earth dist.	-4263 Oct 21 j 15:35	25° <del>11</del> 49'29	45.00921 AU	min. Earth dist.	-4255 Oct 30 j 05:07	4° <del>11</del> 14'01	43.66370 AU
direct	-4262 Jan 10 j 05:42	24° <del>11</del> 49'27		direct	-4254 Jan 18 j 11:03	3° <del>11</del> 13'04	
max. Earth dist.	-4262 Apr 19 j 21:10	26° <del>11</del> 19'12	46.90827 AU	max. Earth dist.	-4254 Apr 28 j 07:34	4° <del>11</del> 45'00	45.56031 AU
conjunction	-4262 Apr 21 j 10:00	26° <del>11</del> 21'23	-8°-51'-31	conjunction	-4254 Apr 30 j 06:08	4° <del>11</del> 47'49	-6°-37'-23
minimum elong	-4262 Apr 21 j 10:13	26° <del>11</del> 21'24	8°51'33	minimum elong	-4254 Apr 30 j 06:18	4° <del>11</del> 47'50	6°37'25



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 10

Attention, astronomical year style is used: The year -4254 in astronomical counting style is the year 4255 BCE in historical counting style.

retrograde	-4254 Aug 10 j 00:40	6°♊23'02		direct	-4245 Jan 28 j 15:38	13°♊15'13	
opposition	-4254 Oct 29 j 20:05	5°♊20'52	-6°-46'-16	max. Earth dist.	-4245 May 08 j 14:25	14°♊50'43	43.79356 AU
min. Earth dist.	-4254 Oct 31 j 14:17	5°♊18'44	43.48293 AU				
direct	-4253 Jan 19 j 17:01	4°♊17'43		conjunction	-4245 May 11 j 01:37	14°♊54'27	-3°-44'-50
max. Earth dist.	-4253 Apr 29 j 16:13	5°♊50'03	45.37955 AU	minimum elong	-4245 May 11 j 01:43	14°♊54'27	3°44'49
				retrograde	-4245 Aug 20 j 13:25	16°♊33'33	
conjunction	-4253 May 01 j 15:25	5°♊52'55	-6°-19'-21	opposition	-4245 Nov 08 j 22:30	15°♊29'50	-3°-44'-56
minimum elong	-4253 May 01 j 15:35	5°♊52'56	6°19'21	min. Earth dist.	-4245 Nov 11 j 03:00	15°♊27'05	41.69034 AU
retrograde	-4253 Aug 11 j 08:16	7°♊28'32		direct	-4244 Jan 29 j 23:29	14°♊24'43	
opposition	-4253 Oct 31 j 03:22	6°♊26'15	-6°-27'-19	max. Earth dist.	-4244 May 09 j 01:16	16°♊00'44	43.57983 AU
min. Earth dist.	-4253 Nov 01 j 21:41	6°♊24'06	43.29942 AU				
direct	-4252 Jan 21 j 02:19	5°♊22'56		conjunction	-4244 May 11 j 12:57	16°♊04'31	-3°-24'-14
max. Earth dist.	-4252 Apr 29 j 23:24	6°♊55'36	45.19562 AU	minimum elong	-4244 May 11 j 13:02	16°♊04'31	3°24'12
				retrograde	-4244 Aug 21 j 01:06	17°♊44'07	
conjunction	-4252 May 02 j 00:52	6°♊58'38	-6°-1'-1	opposition	-4244 Nov 09 j 08:01	16°♊40'10	-3°-23'-15
minimum elong	-4252 May 02 j 01:01	6°♊58'38	6°01'01	min. Earth dist.	-4244 Nov 11 j 13:52	16°♊37'21	41.47493 AU
retrograde	-4252 Aug 11 j 16:17	8°♊34'39		direct	-4243 Jan 30 j 06:51	15°♊34'48	
opposition	-4252 Oct 31 j 11:04	7°♊32'15	-6°-8'-4	max. Earth dist.	-4243 May 10 j 11:48	17°♊11'19	43.36435 AU
min. Earth dist.	-4252 Nov 02 j 07:23	7°♊29'59	43.11258 AU				
direct	-4251 Jan 21 j 10:51	6°♊28'47		conjunction	-4243 May 13 j 00:18	17°♊15'10	-3°-3'-21
max. Earth dist.	-4251 May 01 j 08:50	8°♊01'54	45.00794 AU	minimum elong	-4243 May 13 j 00:23	17°♊15'10	3°03'19
				retrograde	-4243 Aug 22 j 13:49	18°♊55'17	
conjunction	-4251 May 03 j 10:35	8°♊04'57	-5°-42'-24	opposition	-4243 Nov 10 j 17:39	17°♊51'07	-3°-1'-15
minimum elong	-4251 May 03 j 10:44	8°♊04'58	5°42'23	min. Earth dist.	-4243 Nov 12 j 23:22	17°♊48'18	41.25784 AU
retrograde	-4251 Aug 13 j 00:09	9°♊41'24		direct	-4242 Jan 31 j 15:46	16°♊45'29	
opposition	-4251 Nov 01 j 18:59	8°♊38'51	-5°-48'-32	max. Earth dist.	-4242 May 11 j 21:57	18°♊22'31	43.14699 AU
min. Earth dist.	-4251 Nov 03 j 16:21	8°♊36'32	42.92158 AU				
direct	-4250 Jan 22 j 19:23	7°♊35'13		conjunction	-4242 May 14 j 12:09	18°♊26'30	-2°-42'-10
max. Earth dist.	-4250 May 02 j 16:19	9°♊08'39	44.81593 AU	minimum elong	-4242 May 14 j 12:14	18°♊26'30	2°42'07
				retrograde	-4242 Aug 24 j 01:50	20°♊07'09	
conjunction	-4250 May 04 j 20:33	9°♊11'52	-5°-23'-31	opposition	-4242 Nov 12 j 03:37	19°♊02'47	-2°-38'-56
minimum elong	-4250 May 04 j 20:41	9°♊11'53	5°23'30	min. Earth dist.	-4242 Nov 14 j 11:09	18°♊59'51	41.03898 AU
retrograde	-4250 Aug 14 j 11:38	10°♊48'45		direct	-4241 Feb 02 j 02:39	17°♊56'54	
opposition	-4250 Nov 03 j 02:58	9°♊46'03	-5°-28'-41	max. Earth dist.	-4241 May 13 j 10:17	19°♊34'34	42.92773 AU
min. Earth dist.	-4250 Nov 05 j 01:31	9°♊43'40	42.72622 AU				
direct	-4249 Jan 24 j 00:50	8°♊42'12		conjunction	-4241 May 16 j 00:23	19°♊38'34	-2°-20'-41
max. Earth dist.	-4249 May 04 j 01:18	10°♊16'03	44.61928 AU	minimum elong	-4241 May 16 j 00:27	19°♊38'34	2°20'40
				retrograde	-4241 Aug 25 j 11:52	21°♊19'48	
conjunction	-4249 May 06 j 06:55	10°♊19'22	-5°-4'-21	opposition	-4241 Nov 13 j 13:54	20°♊15'13	-2°-16'-18
minimum elong	-4249 May 06 j 07:03	10°♊19'22	5°04'20	min. Earth dist.	-4241 Nov 15 j 21:43	20°♊12'16	40.81797 AU
retrograde	-4249 Aug 15 j 22:43	11°♊56'40		direct	-4240 Feb 03 j 15:29	19°♊09'06	
opposition	-4249 Nov 04 j 11:25	10°♊53'48	-5°-8'-33	max. Earth dist.	-4240 May 13 j 20:21	20°♊47'16	42.70601 AU
min. Earth dist.	-4249 Nov 06 j 12:00	10°♊51'18	42.52628 AU				
direct	-4248 Jan 25 j 08:34	9°♊49'43		conjunction	-4240 May 16 j 12:38	20°♊51'26	-1°-58'-56
max. Earth dist.	-4248 May 04 j 10:33	11°♊23'59	44.41833 AU	minimum elong	-4240 May 16 j 12:42	20°♊51'26	1°58'53
				retrograde	-4240 Aug 26 j 00:38	22°♊33'16	
conjunction	-4248 May 06 j 17:12	11°♊27'23	-4°-44'-54	opposition	-4240 Nov 14 j 00:28	21°♊28'30	-1°-53'-22
minimum elong	-4248 May 06 j 17:19	11°♊27'23	4°44'53	min. Earth dist.	-4240 Nov 16 j 09:42	21°♊25'27	40.59440 AU
retrograde	-4248 Aug 16 j 09:47	13°♊05'07		direct	-4239 Feb 04 j 00:56	20°♊22'06	
opposition	-4248 Nov 04 j 19:51	12°♊02'03	-4°-48'-6	max. Earth dist.	-4239 May 15 j 08:40	22°♊00'54	42.48117 AU
min. Earth dist.	-4248 Nov 06 j 20:46	11°♊59'31	42.32223 AU				
direct	-4247 Jan 25 j 18:31	10°♊57'44		conjunction	-4239 May 18 j 01:33	22°♊05'08	-1°-36'-53
max. Earth dist.	-4247 May 05 j 18:49	12°♊32'21	44.21331 AU	minimum elong	-4239 May 18 j 01:36	22°♊05'08	1°36'51
				retrograde	-4239 Aug 27 j 12:08	23°♊47'37	
conjunction	-4247 May 08 j 03:46	12°♊35'55	-4°-25'-10	opposition	-4239 Nov 15 j 11:22	22°♊42'37	-1°-30'-7
minimum elong	-4247 May 08 j 03:53	12°♊35'55	4°25'09	min. Earth dist.	-4239 Nov 17 j 22:05	22°♊39'28	40.36743 AU
retrograde	-4247 Aug 17 j 19:37	14°♊14'05		direct	-4238 Feb 05 j 11:21	21°♊35'57	
opposition	-4247 Nov 06 j 04:30	13°♊10'48	-4°-27'-22	max. Earth dist.	-4238 May 16 j 20:12	23°♊15'20	42.25283 AU
min. Earth dist.	-4247 Nov 08 j 07:34	13°♊08'09	42.11455 AU				
direct	-4246 Jan 27 j 04:18	12°♊06'13		conjunction	-4238 May 19 j 14:44	23°♊19'42	-1°-14'-33
max. Earth dist.	-4246 May 07 j 05:31	13°♊41'20	44.00489 AU	minimum elong	-4238 May 19 j 14:46	23°♊19'42	1°14'29
				retrograde	-4238 Aug 29 j 03:21	25°♊02'48	
conjunction	-4246 May 09 j 14:41	13°♊44'56	-4°-5'-9	opposition	-4238 Nov 16 j 22:36	23°♊57'34	-1°-6'-33
minimum elong	-4246 May 09 j 14:47	13°♊44'56	4°05'07	min. Earth dist.	-4238 Nov 19 j 09:53	23°♊54'23	40.13685 AU
retrograde	-4246 Aug 19 j 02:41	15°♊23'33		direct	-4237 Feb 06 j 20:57	22°♊50'37	
opposition	-4246 Nov 07 j 13:25	14°♊20'03	-4°-6'-18	max. Earth dist.	-4237 May 18 j 07:54	24°♊30'35	42.02050 AU
min. Earth dist.	-4246 Nov 09 j 16:58	14°♊17'22	41.90366 AU				



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 11

Attention, astronomical year style is used: The year -4237 in astronomical counting style is the year 4238 BCE in historical counting style.

conjunction	-4237 May 21 j 04:17	24° $\Upsilon$ 35°06	0°-51°-57	opposition	-4230 Nov 27 j 05:14	4° $\text{♄}$ 28°08	2°12'36
minimum elong	-4237 May 21 j 04:19	24° $\Upsilon$ 35°06	0°51'54	min. Earth dist.	-4230 Nov 30 j 00:22	4° $\text{♄}$ 24°24	38.19853 AU
retrograde	-4237 Aug 30 j 18:16	26° $\Upsilon$ 18°51		direct	-4229 Feb 17 j 02:42	3° $\text{♄}$ 18°28	
opposition	-4237 Nov 18 j 10:17	25° $\Upsilon$ 13°21	0°-42°-41	max. Earth dist.	-4229 May 29 j 01:35	5° $\text{♄}$ 04°22	40.07394 AU
min. Earth dist.	-4237 Nov 20 j 23:49	25° $\Upsilon$ 10°03	39.90248 AU				
direct	-4236 Feb 08 j 07:35	24° $\Upsilon$ 06°06		conjunction	-4229 Jun 01 j 04:26	5° $\text{♄}$ 09°36	2°18'33
max. Earth dist.	-4236 May 18 j 21:16	25° $\Upsilon$ 46°45	41.78461 AU	minimum elong	-4229 Jun 01 j 04:21	5° $\text{♄}$ 09°35	2°18'39
				retrograde	-4229 Sep 10 j 15:29	6° $\text{♄}$ 59°18	
conjunction	-4236 May 21 j 18:10	25° $\Upsilon$ 51°20	0°-29°-4	opposition	-4229 Nov 28 j 19:53	5° $\text{♄}$ 51°28	2°38'45
minimum elong	-4236 May 21 j 18:11	25° $\Upsilon$ 51°20	0°29°00	min. Earth dist.	-4229 Dec 01 j 15:06	5° $\text{♄}$ 47°42	37.95154 AU
retrograde	-4236 Aug 31 j 06:28	27° $\Upsilon$ 35°44		direct	-4228 Feb 18 j 19:18	4° $\text{♄}$ 41°28	
opposition	-4236 Nov 18 j 22:10	26° $\Upsilon$ 29°58	0°-18°-31	max. Earth dist.	-4228 May 29 j 16:39	6° $\text{♄}$ 28°10	39.82593 AU
min. Earth dist.	-4236 Nov 21 j 11:53	26° $\Upsilon$ 26°37	39.66473 AU				
direct	-4235 Feb 08 j 21:50	25° $\Upsilon$ 22°23		conjunction	-4228 Jun 01 j 21:12	6° $\text{♄}$ 33°34	2°43'28
max. Earth dist.	-4235 May 20 j 08:57	27° $\Upsilon$ 03°37	41.54543 AU	minimum elong	-4228 Jun 01 j 21:07	6° $\text{♄}$ 33°34	2°43'34
				retrograde	-4228 Sep 11 j 08:14	8° $\text{♄}$ 24°09	
conjunction	-4235 May 23 j 08:11	27° $\Upsilon$ 08°22	0°-5°-57	opposition	-4228 Nov 29 j 10:55	7° $\text{♄}$ 16°02	3°05'08
minimum elong	-4235 May 23 j 08:11	27° $\Upsilon$ 08°22	0°05'53	min. Earth dist.	-4228 Dec 02 j 06:57	7° $\text{♄}$ 12°12	37.70372 AU
behind sun begin	-4235 May 23 j 01:57	27° $\Upsilon$ 07°59		direct	-4227 Feb 19 j 08:57	6° $\text{♄}$ 05°41	
behind sun end	-4235 May 23 j 14:24	27° $\Upsilon$ 08°46		max. Earth dist.	-4227 May 31 j 09:46	7° $\text{♄}$ 53°20	39.57647 AU
asc. node	-4235 Aug 24 j 01:27	28° $\Upsilon$ 52°28					
retrograde	-4235 Sep 01 j 19:36	28° $\Upsilon$ 53°27		conjunction	-4227 Jun 03 j 14:37	7° $\text{♄}$ 58°47	3°08'36
opposition	-4235 Nov 20 j 10:25	27° $\Upsilon$ 47°24	0°05'56	minimum elong	-4227 Jun 03 j 14:31	7° $\text{♄}$ 58°46	3°08'44
min. Earth dist.	-4235 Nov 23 j 01:49	27° $\Upsilon$ 43°57	39.42410 AU	retrograde	-4227 Sep 13 j 00:47	9° $\text{♄}$ 50°16	
direct	-4234 Feb 10 j 10:40	26° $\Upsilon$ 39°29		opposition	-4227 Dec 01 j 02:39	8° $\text{♄}$ 41°52	3°31'47
max. Earth dist.	-4234 May 21 j 23:29	28° $\Upsilon$ 21°27	41.30346 AU	min. Earth dist.	-4227 Dec 04 j 00:07	8° $\text{♄}$ 37°55	37.45421 AU
				direct	-4226 Feb 20 j 22:35	7° $\text{♄}$ 31°09	
conjunction	-4234 May 24 j 22:47	28° $\Upsilon$ 26°15	0°17'34	max. Earth dist.	-4226 Jun 02 j 02:37	9° $\text{♄}$ 19°41	39.32518 AU
minimum elong	-4234 May 24 j 22:47	28° $\Upsilon$ 26°15	0°17'39				
	-4234 Aug 03 j 14:04	0° $\text{♄}$		conjunction	-4226 Jun 05 j 08:32	9° $\text{♄}$ 25°15	3°33'57
retrograde	-4234 Sep 03 j 07:45	0° $\text{♄}$ 12°02		minimum elong	-4226 Jun 05 j 08:24	9° $\text{♄}$ 25°15	3°34'04
	-4234 Oct 04 j 10:13	30° $\text{♄}$		retrograde	-4226 Sep 14 j 20:13	11° $\text{♄}$ 17°40	
opposition	-4234 Nov 21 j 22:59	29° $\Upsilon$ 05°41	0°30'42	opposition	-4226 Dec 02 j 18:41	10° $\text{♄}$ 08°56	3°58'40
min. Earth dist.	-4234 Nov 24 j 15:16	29° $\Upsilon$ 02°10	39.18107 AU	min. Earth dist.	-4226 Dec 05 j 16:19	10° $\text{♄}$ 04°58	37.20282 AU
direct	-4233 Feb 11 j 23:40	27° $\Upsilon$ 57°24		direct	-4225 Feb 22 j 13:41	8° $\text{♄}$ 57°50	
max. Earth dist.	-4233 May 23 j 12:42	29° $\Upsilon$ 40°02	41.05949 AU	max. Earth dist.	-4225 Jun 03 j 19:26	10° $\text{♄}$ 47°15	39.07164 AU
conjunction	-4233 May 26 j 13:32	29° $\Upsilon$ 44°59	0°41'15	conjunction	-4225 Jun 07 j 03:02	10° $\text{♄}$ 52°59	3°59'30
minimum elong	-4233 May 26 j 13:31	29° $\Upsilon$ 44°58	0°41'20	minimum elong	-4225 Jun 07 j 02:54	10° $\text{♄}$ 52°58	3°59'38
	-4233 Jun 04 j 19:41	0° $\text{♄}$		retrograde	-4225 Sep 16 j 16:46	12° $\text{♄}$ 46°20	
retrograde	-4233 Sep 04 j 23:21	1° $\text{♄}$ 31°29		opposition	-4225 Dec 04 j 11:32	11° $\text{♄}$ 37°15	4°25'46
opposition	-4233 Nov 23 j 11:55	0° $\text{♄}$ 24°50	0°55'45	min. Earth dist.	-4225 Dec 07 j 11:00	11° $\text{♄}$ 33°09	36.94941 AU
min. Earth dist.	-4233 Nov 26 j 04:33	0° $\text{♄}$ 21°17	38.93654 AU	direct	-4224 Feb 24 j 05:24	10° $\text{♄}$ 25°45	
	-4233 Dec 12 j 17:27	30° $\text{♄}$		max. Earth dist.	-4224 Jun 04 j 14:20	12° $\text{♄}$ 16°10	38.81615 AU
direct	-4232 Feb 13 j 10:31	29° $\Upsilon$ 16°12					
	-4232 Apr 14 j 22:27	0° $\text{♄}$		conjunction	-4224 Jun 07 j 21:50	12° $\text{♄}$ 21°57	4°25'14
max. Earth dist.	-4232 May 24 j 03:00	0° $\text{♄}$ 59°35	40.81403 AU	minimum elong	-4224 Jun 07 j 21:41	12° $\text{♄}$ 21°56	4°25'21
				retrograde	-4224 Sep 17 j 12:16	14° $\text{♄}$ 16°14	
conjunction	-4232 May 27 j 04:34	1° $\text{♄}$ 04°36	1°05'12	opposition	-4224 Dec 05 j 04:43	13° $\text{♄}$ 06°47	4°53'05
minimum elong	-4232 May 27 j 04:32	1° $\text{♄}$ 04°36	1°05'17	min. Earth dist.	-4224 Dec 08 j 04:07	13° $\text{♄}$ 02°40	36.69419 AU
retrograde	-4232 Sep 05 j 15:23	2° $\text{♄}$ 51°52		direct	-4223 Feb 25 j 00:21	11° $\text{♄}$ 54°52	
opposition	-4232 Nov 24 j 01:24	1° $\text{♄}$ 44°55	1°21'06	max. Earth dist.	-4223 Jun 06 j 07:45	13° $\text{♄}$ 46°10	38.55894 AU
min. Earth dist.	-4232 Nov 26 j 19:23	1° $\text{♄}$ 41°16	38.69096 AU				
direct	-4231 Feb 13 j 22:48	0° $\text{♄}$ 35°56		conjunction	-4223 Jun 09 j 17:13	13° $\text{♄}$ 52°08	4°51'09
max. Earth dist.	-4231 May 25 j 18:26	2° $\text{♄}$ 20°08	40.56787 AU	minimum elong	-4223 Jun 09 j 17:03	13° $\text{♄}$ 52°07	4°51'17
					-4223 Jul 20 j 18:07	15° $\text{♄}$	
conjunction	-4231 May 28 j 20:03	2° $\text{♄}$ 25°12	1°29'24	retrograde	-4223 Sep 19 j 07:40	15° $\text{♄}$ 47°23	
minimum elong	-4231 May 28 j 20:00	2° $\text{♄}$ 25°11	1°29'30		-4223 Nov 20 j 13:12	15° $\text{♄}$	
retrograde	-4231 Sep 07 j 09:03	4° $\text{♄}$ 13°14		opposition	-4223 Dec 06 j 22:18	14° $\text{♄}$ 37°34	5°20'36
opposition	-4231 Nov 25 j 14:59	3° $\text{♄}$ 05°59	1°46'43	min. Earth dist.	-4223 Dec 09 j 23:09	14° $\text{♄}$ 33°20	36.43775 AU
min. Earth dist.	-4231 Nov 28 j 08:36	3° $\text{♄}$ 02°20	38.44492 AU	direct	-4222 Feb 26 j 17:23	13° $\text{♄}$ 25°12	
direct	-4230 Feb 15 j 12:56	1° $\text{♄}$ 56°39			-4222 May 29 j 04:25	15° $\text{♄}$	
max. Earth dist.	-4230 May 27 j 08:44	3° $\text{♄}$ 41°37	40.32115 AU	max. Earth dist.	-4222 Jun 08 j 04:02	15° $\text{♄}$ 17°33	38.30056 AU
conjunction	-4230 May 30 j 12:00	3° $\text{♄}$ 46°50	1°53'52	conjunction	-4222 Jun 11 j 13:16	15° $\text{♄}$ 23°33	5°17'12
minimum elong	-4230 May 30 j 11:57	3° $\text{♄}$ 46°49	1°53'57	minimum elong	-4222 Jun 11 j 13:05	15° $\text{♄}$ 23°33	5°17'19
retrograde	-4230 Sep 09 j 01:30	5° $\text{♄}$ 35°41		retrograde	-4222 Sep 21 j 01:11	17° $\text{♄}$ 19°47	



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 12

Attention, astronomical year style is used: The year -4222 in astronomical counting style is the year 4223 BCE in historical counting style.

opposition	-4222 Dec 08 j 16:37	16° <del>8</del> 09'35	5°48'16			-4214 Nov 22 j 20:30	30° <del>8</del>	
min. Earth dist.	-4222 Dec 11 j 17:58	16° <del>8</del> 05'17	36.18051 AU	opposition	-4214 Dec 21 j 17:15	29° <del>8</del> 19'49	9°32'22	
	-4221 Feb 12 j 19:58	15° <del>8</del>		min. Earth dist.	-4214 Dec 24 j 20:19	29° <del>8</del> 15'13	34.16030 AU	
direct	-4221 Feb 28 j 13:03	14° <del>8</del> 56'46		direct	-4213 Mar 13 j 04:49	28° <del>8</del> 03'35		
	-4221 Mar 16 j 01:39	15° <del>8</del>			-4213 Jun 20 j 03:30	0° <del>II</del>		
max. Earth dist.	-4221 Jun 09 j 23:09	16° <del>8</del> 50'05	38.04176 AU	max. Earth dist.	-4213 Jun 23 j 14:32	0° <del>II</del> 06'39	36.00879 AU	
conjunction	-4221 Jun 13 j 09:32	16° <del>8</del> 56'14	5°43'24	conjunction	-4213 Jun 27 j 02:28	0° <del>II</del> 13'25	9°14'13	
minimum elong	-4221 Jun 13 j 09:20	16° <del>8</del> 56'13	5°43'32	minimum elong	-4213 Jun 27 j 02:08	0° <del>II</del> 13'23	9°14'23	
retrograde	-4221 Sep 22 j 22:05	18° <del>8</del> 53'30		retrograde	-4213 Oct 06 j 20:24	2° <del>II</del> 20'10		
opposition	-4221 Dec 10 j 11:22	17° <del>8</del> 42'53	6°16'05	opposition	-4213 Dec 23 j 17:45	1° <del>II</del> 06'35	10°00'17	
min. Earth dist.	-4221 Dec 13 j 12:43	17° <del>8</del> 38'34	35.92342 AU	min. Earth dist.	-4213 Dec 26 j 22:01	1° <del>II</del> 01'52	33.91241 AU	
direct	-4220 Mar 01 j 06:06	16° <del>8</del> 29'37			-4212 Feb 16 j 04:46	30° <del>8</del>		
max. Earth dist.	-4220 Jun 10 j 20:00	18° <del>8</del> 24'02	37.78316 AU	direct	-4212 Mar 14 j 03:12	29° <del>8</del> 49'54		
conjunction	-4220 Jun 14 j 06:30	18° <del>8</del> 30'14	6°09'41		-4212 Apr 09 j 21:33	0° <del>II</del>		
minimum elong	-4220 Jun 14 j 06:18	18° <del>8</del> 30'13	6°09'49	max. Earth dist.	-4212 Jun 24 j 17:01	1° <del>II</del> 54'19	35.75862 AU	
retrograde	-4220 Sep 23 j 18:26	20° <del>8</del> 28'33		conjunction	-4212 Jun 28 j 04:42	2° <del>II</del> 01'08	9°40'18	
opposition	-4220 Dec 11 j 06:49	19° <del>8</del> 17'33	6°44'01	minimum elong	-4212 Jun 28 j 04:22	2° <del>II</del> 01'06	9°40'28	
min. Earth dist.	-4220 Dec 14 j 09:14	19° <del>8</del> 13'08	35.66710 AU	retrograde	-4212 Oct 08 j 00:29	4° <del>II</del> 09'11		
direct	-4219 Mar 02 j 23:21	18° <del>8</del> 03'50		opposition	-4212 Dec 24 j 18:45	2° <del>II</del> 55'10	10°28'04	
max. Earth dist.	-4219 Jun 12 j 17:37	19° <del>8</del> 59'24	37.52570 AU	min. Earth dist.	-4212 Dec 27 j 22:19	2° <del>II</del> 50'28	33.66527 AU	
conjunction	-4219 Jun 16 j 03:55	20° <del>8</del> 05'39	6°36'03	direct	-4211 Mar 16 j 03:32	1° <del>II</del> 38'00		
minimum elong	-4219 Jun 16 j 03:41	20° <del>8</del> 05'37	6°36'12	max. Earth dist.	-4211 Jun 26 j 18:55	3° <del>II</del> 43'43	35.50915 AU	
retrograde	-4219 Sep 25 j 17:32	22° <del>8</del> 05'03		conjunction	-4211 Jun 30 j 07:40	3° <del>II</del> 50'40	10°06'14	
opposition	-4219 Dec 13 j 02:48	20° <del>8</del> 53'40	7°12'02	minimum elong	-4211 Jun 30 j 07:19	3° <del>II</del> 50'39	10°06'24	
min. Earth dist.	-4219 Dec 16 j 04:26	20° <del>8</del> 49'16	35.41218 AU	retrograde	-4211 Oct 10 j 05:06	6° <del>II</del> 00'02		
direct	-4218 Mar 04 j 19:26	19° <del>8</del> 39'30		opposition	-4211 Dec 26 j 20:41	4° <del>II</del> 45'35	10°55'39	
max. Earth dist.	-4218 Jun 14 j 14:43	21° <del>8</del> 36'11	37.26958 AU	min. Earth dist.	-4211 Dec 30 j 01:28	4° <del>II</del> 40'47	33.41924 AU	
conjunction	-4218 Jun 18 j 02:01	21° <del>8</del> 42'34	7°02'27	direct	-4210 Mar 18 j 03:26	3° <del>II</del> 27'56		
minimum elong	-4218 Jun 18 j 01:47	21° <del>8</del> 42'33	7°02'35	max. Earth dist.	-4210 Jun 28 j 23:42	5° <del>II</del> 35'06	35.26099 AU	
retrograde	-4218 Sep 27 j 18:13	23° <del>8</del> 43'07		conjunction	-4210 Jul 02 j 11:24	5° <del>II</del> 42'02	10°31'55	
opposition	-4218 Dec 14 j 23:29	22° <del>8</del> 31'21	7°40'06	minimum elong	-4210 Jul 02 j 11:02	5° <del>II</del> 42'00	10°32'06	
min. Earth dist.	-4218 Dec 18 j 02:11	22° <del>8</del> 26'52	35.15900 AU	retrograde	-4210 Oct 12 j 09:34	7° <del>II</del> 52'42		
direct	-4217 Mar 06 j 14:47	21° <del>8</del> 16'46		opposition	-4210 Dec 28 j 23:20	6° <del>II</del> 37'49	11°23'01	
max. Earth dist.	-4217 Jun 16 j 14:31	23° <del>8</del> 14'45	37.01524 AU	min. Earth dist.	-4209 Jan 01 j 03:23	6° <del>II</del> 33'02	33.17484 AU	
conjunction	-4217 Jun 20 j 00:49	23° <del>8</del> 21'07	7°28'53	direct	-4209 Mar 20 j 07:25	5° <del>II</del> 19'40		
minimum elong	-4217 Jun 20 j 00:33	23° <del>8</del> 21'06	7°29'02	max. Earth dist.	-4209 Jul 01 j 03:06	7° <del>II</del> 28'07	35.01484 AU	
retrograde	-4217 Sep 29 j 16:57	25° <del>8</del> 22'51		conjunction	-4209 Jul 04 j 15:41	7° <del>II</del> 35'12	10°57'21	
opposition	-4217 Dec 16 j 20:55	24° <del>8</del> 10'44	8°08'12	minimum elong	-4209 Jul 04 j 15:18	7° <del>II</del> 35'10	10°57'32	
min. Earth dist.	-4217 Dec 19 j 22:58	24° <del>8</del> 06'16	34.90756 AU	retrograde	-4209 Oct 14 j 16:37	9° <del>II</del> 47'11		
direct	-4216 Mar 07 j 12:48	22° <del>8</del> 55'45		opposition	-4209 Dec 31 j 02:49	8° <del>II</del> 31'51	11°50'03	
max. Earth dist.	-4216 Jun 17 j 12:34	24° <del>8</del> 54'55	36.76242 AU	min. Earth dist.	-4208 Jan 03 j 06:59	8° <del>II</del> 27'01	32.93310 AU	
conjunction	-4216 Jun 20 j 23:58	25° <del>8</del> 01'26	7°55'17	direct	-4208 Mar 21 j 10:46	7° <del>II</del> 13'12		
minimum elong	-4216 Jun 20 j 23:41	25° <del>8</del> 01'24	7°55'26	max. Earth dist.	-4208 Jul 02 j 09:37	9° <del>II</del> 23'10	34.77154 AU	
retrograde	-4216 Sep 30 j 17:38	27° <del>8</del> 04'22		conjunction	-4208 Jul 05 j 20:39	9° <del>II</del> 30'11	11°22'25	
opposition	-4216 Dec 17 j 18:56	25° <del>8</del> 51'54	8°36'18	minimum elong	-4208 Jul 05 j 20:16	9° <del>II</del> 30'10	11°22'35	
min. Earth dist.	-4216 Dec 20 j 21:37	25° <del>8</del> 47'22	34.65766 AU	retrograde	-4208 Oct 15 j 21:14	11° <del>II</del> 43'31		
direct	-4215 Mar 09 j 09:38	24° <del>8</del> 36'31		opposition	-4207 Jan 01 j 07:10	10° <del>II</del> 27'44	12°16'43	
max. Earth dist.	-4215 Jun 19 j 13:24	26° <del>8</del> 37'02	36.51063 AU	min. Earth dist.	-4207 Jan 04 j 11:01	10° <del>II</del> 22'53	32.69460 AU	
conjunction	-4215 Jun 23 j 00:08	26° <del>8</del> 43'34	8°21'40	direct	-4207 Mar 23 j 15:09	9° <del>II</del> 08'35		
minimum elong	-4215 Jun 22 j 23:50	26° <del>8</del> 43'32	8°21'50	max. Earth dist.	-4207 Jul 04 j 15:18	11° <del>II</del> 19'56	34.53200 AU	
retrograde	-4215 Oct 02 j 16:48	28° <del>8</del> 47'45		conjunction	-4207 Jul 08 j 02:19	11° <del>II</del> 27'02	11°47'05	
opposition	-4215 Dec 19 j 17:42	27° <del>8</del> 34'56	9°04'22	minimum elong	-4207 Jul 08 j 01:55	11° <del>II</del> 27'00	11°47'16	
min. Earth dist.	-4215 Dec 22 j 20:59	27° <del>8</del> 30'20	34.40862 AU	retrograde	-4207 Oct 18 j 03:32	13° <del>II</del> 41'43		
direct	-4214 Mar 11 j 07:42	26° <del>8</del> 19'07		opposition	-4206 Jan 03 j 12:06	12° <del>II</del> 25'29	12°42'56	
max. Earth dist.	-4214 Jun 21 j 13:19	28° <del>8</del> 20'53	36.25956 AU	min. Earth dist.	-4206 Jan 06 j 14:56	12° <del>II</del> 20'41	32.46037 AU	
conjunction	-4214 Jun 25 j 00:56	28° <del>8</del> 27'33	8°47'59	direct	-4206 Mar 25 j 18:51	11° <del>II</del> 05'51		
minimum elong	-4214 Jun 25 j 00:38	28° <del>8</del> 27'32	8°48'08	max. Earth dist.	-4206 Jul 06 j 23:02	13° <del>II</del> 18'44	34.29683 AU	
	-4214 Aug 17 j 23:56	0° <del>II</del>		conjunction	-4206 Jul 10 j 08:56	13° <del>II</del> 25'48	12°11'16	
retrograde	-4214 Oct 04 j 19:10	0° <del>II</del> 33'01		minimum elong	-4206 Jul 10 j 08:33	13° <del>II</del> 25'46	12°11'26	



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 13

Attention, astronomical year style is used: The year -4206 in astronomical counting style is the year 4207 BCE in historical counting style.

retrograde	-4206 Oct 20 j 09:27	15°II41'53		retrograde	-4198 Nov 07 j 08:08	2°☾59'38	
opposition	-4205 Jan 05 j 18:14	14°II25'13	13°08'37	opposition	-4197 Jan 23 j 03:14	1°☾39'51	16°06'54
min. Earth dist.	-4205 Jan 08 j 21:06	14°II20'22	32.23086 AU	min. Earth dist.	-4197 Jan 25 j 22:21	1°☾35'18	30.57067 AU
direct	-4205 Mar 27 j 22:24	13°II05'07		direct	-4197 Apr 13 j 21:32	0°☾16'25	
max. Earth dist.	-4205 Jul 09 j 07:16	15°II19'32	34.06677 AU	max. Earth dist.	-4197 Jul 27 j 07:33	2°☾43'07	32.40201 AU
conjunction	-4205 Jul 12 j 16:03	15°II26'35	12°34'54	conjunction	-4197 Jul 30 j 07:13	2°☾49'52	15°16'42
minimum elong	-4205 Jul 12 j 15:39	15°II26'33	12°35'05	minimum elong	-4197 Jul 30 j 06:51	2°☾49'50	15°16'54
retrograde	-4205 Oct 22 j 18:18	17°II44'05		retrograde	-4197 Nov 09 j 21:45	5°☾18'38	
opposition	-4204 Jan 08 j 01:05	16°II27'01	13°33'43	opposition	-4196 Jan 25 j 17:34	3°☾58'26	16°24'38
min. Earth dist.	-4204 Jan 11 j 02:05	16°II22'15	32.00652 AU	min. Earth dist.	-4196 Jan 28 j 12:09	3°☾53'55	30.38663 AU
direct	-4204 Mar 29 j 03:08	15°II06'28		direct	-4196 Apr 15 j 09:18	2°☾34'38	
max. Earth dist.	-4204 Jul 10 j 15:53	17°II22'23	33.84175 AU	max. Earth dist.	-4196 Jul 28 j 23:44	5°☾02'47	32.21887 AU
conjunction	-4204 Jul 14 j 00:09	17°II29'28	12°57'56	conjunction	-4196 Jul 31 j 21:22	5°☾09'24	15°32'24
minimum elong	-4204 Jul 13 j 23:46	17°II29'26	12°58'07	minimum elong	-4196 Jul 31 j 21:02	5°☾09'22	15°32'35
retrograde	-4204 Oct 24 j 03:28	19°II48'24		retrograde	-4196 Nov 11 j 13:41	7°☾39'28	
opposition	-4203 Jan 09 j 08:48	18°II30'56	13°58'08	opposition	-4195 Jan 27 j 08:25	6°☾18'53	16°41'02
min. Earth dist.	-4203 Jan 12 j 10:07	18°II26'09	31.78728 AU	min. Earth dist.	-4195 Jan 30 j 00:17	6°☾14'31	30.20976 AU
direct	-4203 Mar 31 j 08:22	17°II09'58		direct	-4195 Apr 17 j 22:39	4°☾54'41	
max. Earth dist.	-4203 Jul 13 j 02:40	19°II27'32	33.62178 AU	max. Earth dist.	-4195 Jul 31 j 16:18	7°☾24'15	32.04338 AU
conjunction	-4203 Jul 16 j 09:05	19°II34'31	13°20'18	conjunction	-4195 Aug 03 j 12:16	7°☾30'46	15°46'49
minimum elong	-4203 Jul 16 j 08:40	19°II34'29	13°20'29	minimum elong	-4195 Aug 03 j 11:57	7°☾30'44	15°47'01
retrograde	-4203 Oct 26 j 14:23	21°II54'54		retrograde	-4195 Nov 14 j 04:50	10°☾02'06	
opposition	-4202 Jan 11 j 17:30	20°II37'03	14°21'50	opposition	-4194 Jan 30 j 00:25	8°☾41'09	16°56'00
min. Earth dist.	-4202 Jan 14 j 17:16	20°II32'20	31.57279 AU	min. Earth dist.	-4194 Feb 01 j 15:22	8°☾36'49	30.04090 AU
direct	-4202 Apr 02 j 17:05	19°II15'41		direct	-4194 Apr 20 j 12:26	7°☾16'35	
max. Earth dist.	-4202 Jul 15 j 12:17	21°II34'43	33.40640 AU	max. Earth dist.	-4194 Aug 03 j 10:59	9°☾47'40	31.87660 AU
conjunction	-4202 Jul 18 j 18:47	21°II41'46	13°41'55	conjunction	-4194 Aug 06 j 03:43	9°☾53'55	15°59'49
minimum elong	-4202 Jul 18 j 18:23	21°II41'44	13°42'07	minimum elong	-4194 Aug 06 j 03:26	9°☾53'54	16°00'00
retrograde	-4202 Oct 29 j 02:40	24°II03'37		retrograde	-4194 Nov 16 j 21:32	12°☾26'28	
opposition	-4201 Jan 14 j 03:12	22°II45'22	14°44'45	opposition	-4193 Feb 01 j 17:10	11°☾05'11	17°09'26
min. Earth dist.	-4201 Jan 17 j 02:54	22°II40'38	31.36293 AU	min. Earth dist.	-4193 Feb 04 j 05:00	11°☾01'03	29.88082 AU
direct	-4201 Apr 05 j 00:39	21°II23'35		direct	-4193 Apr 23 j 04:48	9°☾40'19	
max. Earth dist.	-4201 Jul 18 j 00:58	23°II44'17	33.19561 AU	max. Earth dist.	-4193 Aug 06 j 04:43	12°☾12'43	31.71916 AU
conjunction	-4201 Jul 21 j 05:25	23°II51'13	14°02'46	conjunction	-4193 Aug 08 j 19:49	12°☾18'51	16°11'21
minimum elong	-4201 Jul 21 j 05:00	23°II51'10	14°02'57	minimum elong	-4193 Aug 08 j 19:33	12°☾18'49	16°11'33
retrograde	-4201 Oct 31 j 14:29	26°II14'29		retrograde	-4193 Nov 19 j 15:49	14°☾52'35	
opposition	-4200 Jan 16 j 13:55	24°II55'52	15°06'47	opposition	-4192 Feb 04 j 10:42	13°☾30'59	17°21'13
min. Earth dist.	-4200 Jan 19 j 12:26	24°II51'11	31.15751 AU	min. Earth dist.	-4192 Feb 06 j 20:53	13°☾26'58	29.73023 AU
direct	-4200 Apr 06 j 11:07	23°II33'41		direct	-4192 Apr 24 j 19:11	12°☾05'51	
max. Earth dist.	-4200 Jul 19 j 12:13	25°II55'48	32.98946 AU	max. Earth dist.	-4192 Aug 08 j 01:11	14°☾39'43	31.57156 AU
conjunction	-4200 Jul 22 j 16:35	26°II02'48	14°22'44	conjunction	-4192 Aug 10 j 12:32	14°☾45'32	16°21'19
minimum elong	-4200 Jul 22 j 16:12	26°II02'46	14°22'55	minimum elong	-4192 Aug 10 j 12:18	14°☾45'30	16°21'30
retrograde	-4200 Nov 02 j 05:08	28°II27'29		retrograde	-4192 Nov 21 j 10:11	17°☾20'25	
opposition	-4199 Jan 18 j 01:27	27°II08'29	15°27'53	opposition	-4191 Feb 06 j 05:01	15°☾58'33	17°31'19
min. Earth dist.	-4199 Jan 20 j 23:01	27°II03'50	30.95680 AU	min. Earth dist.	-4191 Feb 08 j 12:22	15°☾54'42	29.58903 AU
direct	-4199 Apr 08 j 21:44	25°II45'53		direct	-4191 Apr 27 j 13:25	14°☾33'11	
max. Earth dist.	-4199 Jul 22 j 02:29	28°II09'37	32.78807 AU	max. Earth dist.	-4191 Aug 10 j 19:59	17°☾08'15	31.43364 AU
conjunction	-4199 Jul 25 j 04:51	28°II16'29	14°41'46	conjunction	-4191 Aug 13 j 05:47	17°☾13'56	16°29'40
minimum elong	-4199 Jul 25 j 04:27	28°II16'27	14°41'58	minimum elong	-4191 Aug 13 j 05:35	17°☾13'55	16°29'52
retrograde	-4199 Sep 14 j 17:42	0°☾		retrograde	-4191 Nov 24 j 07:05	19°☾49'54	
retrograde	-4199 Nov 04 j 17:38	0°☾42'34		opposition	-4190 Feb 08 j 23:58	18°☾27'47	17°39'37
	-4199 Dec 27 j 20:28	30°RII		min. Earth dist.	-4190 Feb 11 j 05:04	18°☾24'06	29.45730 AU
opposition	-4198 Jan 20 j 13:53	29°II23'10	15°47'57	direct	-4190 Apr 30 j 07:27	17°☾02'14	
min. Earth dist.	-4198 Jan 23 j 10:57	29°II18'31	30.76093 AU	max. Earth dist.	-4190 Aug 13 j 17:49	19°☾38'39	31.30529 AU
direct	-4198 Apr 11 j 09:15	28°II00'09					
	-4198 Jul 13 j 06:01	0°☾		conjunction	-4190 Aug 15 j 23:47	19°☾44'00	16°36'20
max. Earth dist.	-4198 Jul 24 j 16:10	0°☾25'20	32.59209 AU	minimum elong	-4190 Aug 15 j 23:37	19°☾43'59	16°36'30
				retrograde	-4190 Nov 27 j 01:38	22°☾20'58	
conjunction	-4198 Jul 27 j 17:41	0°☾32'12	14°59'47	opposition	-4189 Feb 11 j 19:56	20°☾58'38	17°46'07
minimum elong	-4198 Jul 27 j 17:19	0°☾32'10	14°59'58	min. Earth dist.	-4189 Feb 13 j 22:51	20°☾55'05	29.33466 AU



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 14

Attention, astronomical year style is used: The year -4189 in astronomical counting style is the year 4190 BCE in historical counting style.

direct	-4189 May 03 j 02:18	19° $\mathring{E}$ 32'55		opposition	-4181 Mar 05 j 05:04	11° $\mathring{O}$ 41'26	17°26'53
max. Earth dist.	-4189 Aug 16 j 13:52	22° $\mathring{E}$ 10'22	31.18634 AU	min. Earth dist.	-4181 Mar 06 j 08:59	11° $\mathring{O}$ 39'28	28.68911 AU
				direct	-4181 May 24 j 03:10	10° $\mathring{O}$ 15'01	
conjunction	-4189 Aug 18 j 17:59	22° $\mathring{E}$ 15'34	16°41'16	max. Earth dist.	-4181 Sep 07 j 05:56	12° $\mathring{O}$ 58'01	30.58579 AU
minimum elong	-4189 Aug 18 j 17:51	22° $\mathring{E}$ 15'33	16°41'27				
retrograde	-4189 Nov 29 j 23:40	24° $\mathring{E}$ 53'28		conjunction	-4181 Sep 08 j 07:29	13° $\mathring{O}$ 00'38	16°14'06
opposition	-4188 Feb 14 j 16:24	23° $\mathring{E}$ 30'55	17°50'43	minimum elong	-4181 Sep 08 j 07:41	13° $\mathring{O}$ 00'39	16°14'15
min. Earth dist.	-4188 Feb 16 j 16:24	23° $\mathring{E}$ 27'34	29.22109 AU		-4181 Nov 01 j 22:44	15° $\mathring{O}$	
direct	-4188 May 04 j 21:55	22° $\mathring{E}$ 05'03		retrograde	-4181 Dec 20 j 21:06	15° $\mathring{O}$ 42'18	
max. Earth dist.	-4188 Aug 18 j 12:25	24° $\mathring{E}$ 43'37	31.07653 AU		-4180 Feb 10 j 13:10	15° $\mathring{R}$ $\mathring{O}$	
				opposition	-4180 Mar 07 j 04:27	14° $\mathring{O}$ 18'35	17°15'05
conjunction	-4188 Aug 20 j 12:59	24° $\mathring{E}$ 48'29	16°44'27	min. Earth dist.	-4180 Mar 08 j 04:21	14° $\mathring{O}$ 16'54	28.65657 AU
minimum elong	-4188 Aug 20 j 12:53	24° $\mathring{E}$ 48'29	16°44'36	direct	-4180 May 26 j 02:41	12° $\mathring{O}$ 52'15	
retrograde	-4188 Dec 01 j 19:46	27° $\mathring{E}$ 27'13			-4180 Aug 25 j 15:02	15° $\mathring{O}$	
opposition	-4187 Feb 16 j 13:29	26° $\mathring{E}$ 04'29	17°53'25	max. Earth dist.	-4180 Sep 09 j 04:33	15° $\mathring{O}$ 35'24	30.56153 AU
min. Earth dist.	-4187 Feb 18 j 11:48	26° $\mathring{E}$ 01'14	29.11630 AU				
direct	-4187 May 07 j 18:16	24° $\mathring{E}$ 38'28		conjunction	-4180 Sep 10 j 03:22	15° $\mathring{O}$ 37'44	16°02'00
max. Earth dist.	-4187 Aug 21 j 09:50	27° $\mathring{E}$ 17'55	30.97602 AU	minimum elong	-4180 Sep 10 j 03:35	15° $\mathring{O}$ 37'45	16°02'07
				retrograde	-4180 Dec 22 j 18:57	18° $\mathring{O}$ 19'26	
conjunction	-4187 Aug 23 j 08:15	27° $\mathring{E}$ 22'35	16°45'48	opposition	-4179 Mar 10 j 03:42	16° $\mathring{O}$ 55'43	17°01'12
minimum elong	-4187 Aug 23 j 08:12	27° $\mathring{E}$ 22'35	16°45'59	min. Earth dist.	-4179 Mar 10 j 23:59	16° $\mathring{O}$ 54'17	28.63632 AU
	-4187 Nov 24 j 00:50	0° $\mathring{O}$		direct	-4179 May 29 j 00:32	15° $\mathring{O}$ 29'30	
retrograde	-4187 Dec 04 j 17:19	0° $\mathring{O}$ 02'02					
	-4187 Dec 15 j 08:56	30° $\mathring{R}$ $\mathring{E}$		conjunction	-4179 Sep 12 j 23:17	18° $\mathring{O}$ 14'45	15°47'58
opposition	-4186 Feb 19 j 11:07	28° $\mathring{E}$ 39'07	17°54'08	minimum elong	-4179 Sep 12 j 23:33	18° $\mathring{O}$ 14'47	15°48'06
min. Earth dist.	-4186 Feb 21 j 05:54	28° $\mathring{E}$ 36'07	29.02048 AU	max. Earth dist.	-4179 Sep 12 j 05:22	18° $\mathring{O}$ 12'55	30.54974 AU
direct	-4186 May 10 j 15:37	27° $\mathring{E}$ 12'58		retrograde	-4179 Dec 25 j 15:05	20° $\mathring{O}$ 56'24	
max. Earth dist.	-4186 Aug 24 j 08:39	29° $\mathring{E}$ 53'17	30.88475 AU	opposition	-4178 Mar 13 j 03:11	19° $\mathring{O}$ 32'44	16°45'15
				min. Earth dist.	-4178 Mar 13 j 20:09	19° $\mathring{O}$ 31'32	28.62797 AU
conjunction	-4186 Aug 26 j 03:51	29° $\mathring{E}$ 57'39	16°45'19	direct	-4178 May 31 j 23:35	18° $\mathring{O}$ 06'41	
minimum elong	-4186 Aug 26 j 03:51	29° $\mathring{E}$ 57'39	16°45'29				
	-4186 Aug 27 j 03:05	0° $\mathring{O}$		conjunction	-4178 Sep 15 j 18:45	20° $\mathring{O}$ 51'35	15°32'03
retrograde	-4186 Dec 07 j 13:11	2° $\mathring{O}$ 37'44		minimum elong	-4178 Sep 15 j 19:02	20° $\mathring{O}$ 51'37	15°32'11
opposition	-4185 Feb 22 j 09:26	1° $\mathring{O}$ 14'37	17°52'50	max. Earth dist.	-4178 Sep 15 j 03:35	20° $\mathring{O}$ 50'02	30.55005 AU
min. Earth dist.	-4185 Feb 24 j 02:26	1° $\mathring{O}$ 11'44	28.93378 AU	retrograde	-4178 Dec 28 j 13:30	23° $\mathring{O}$ 33'07	
	-4185 Apr 16 j 19:34	30° $\mathring{R}$ $\mathring{E}$		opposition	-4177 Mar 16 j 02:34	22° $\mathring{O}$ 09'30	16°27'17
direct	-4185 May 13 j 12:07	29° $\mathring{E}$ 48'23		min. Earth dist.	-4177 Mar 16 j 15:23	22° $\mathring{O}$ 08'37	28.63135 AU
	-4185 Jun 08 j 14:43	0° $\mathring{O}$		direct	-4177 Jun 03 j 21:36	20° $\mathring{O}$ 43'40	
max. Earth dist.	-4185 Aug 27 j 07:29	2° $\mathring{O}$ 29'24	30.80331 AU				
				conjunction	-4177 Sep 18 j 14:18	23° $\mathring{O}$ 28'08	15°14'21
conjunction	-4185 Aug 28 j 23:41	2° $\mathring{O}$ 33'29	16°42'57	minimum elong	-4177 Sep 18 j 14:38	23° $\mathring{O}$ 28'10	15°14'28
minimum elong	-4185 Aug 28 j 23:42	2° $\mathring{O}$ 33'29	16°43'08	max. Earth dist.	-4177 Sep 18 j 03:49	23° $\mathring{O}$ 27'04	30.56196 AU
retrograde	-4185 Dec 10 j 11:20	5° $\mathring{O}$ 14'04		retrograde	-4177 Dec 31 j 10:01	26° $\mathring{O}$ 09'24	
opposition	-4184 Feb 25 j 07:50	3° $\mathring{O}$ 50'47	17°49'30	opposition	-4176 Mar 18 j 01:46	24° $\mathring{O}$ 45'53	16°07'25
min. Earth dist.	-4184 Feb 26 j 20:58	3° $\mathring{O}$ 48'10	28.85670 AU	min. Earth dist.	-4176 Mar 18 j 11:56	24° $\mathring{O}$ 45'11	28.64578 AU
direct	-4184 May 15 j 10:18	2° $\mathring{O}$ 24'27		direct	-4176 Jun 05 j 21:27	23° $\mathring{O}$ 20'17	
max. Earth dist.	-4184 Aug 29 j 06:25	5° $\mathring{O}$ 06'04	30.73196 AU				
				conjunction	-4176 Sep 20 j 09:24	26° $\mathring{O}$ 04'11	14°54'53
conjunction	-4184 Aug 30 j 19:36	5° $\mathring{O}$ 09'51	16°38'40	minimum elong	-4176 Sep 20 j 09:44	26° $\mathring{O}$ 04'13	14°55'00
minimum elong	-4184 Aug 30 j 19:40	5° $\mathring{O}$ 09'52	16°38'50	max. Earth dist.	-4176 Sep 20 j 01:28	26° $\mathring{O}$ 03'23	30.58501 AU
retrograde	-4184 Dec 12 j 07:03	7° $\mathring{O}$ 50'52		retrograde	-4175 Jan 02 j 07:29	28° $\mathring{O}$ 45'07	
opposition	-4183 Feb 27 j 06:42	6° $\mathring{O}$ 27'25	17°44'05	opposition	-4175 Mar 21 j 00:43	27° $\mathring{O}$ 21'43	15°45'42
min. Earth dist.	-4183 Feb 28 j 17:46	6° $\mathring{O}$ 24'57	28.78976 AU	min. Earth dist.	-4175 Mar 21 j 06:31	27° $\mathring{O}$ 21'19	28.67085 AU
direct	-4183 May 18 j 07:02	5° $\mathring{O}$ 01'01		direct	-4175 Jun 08 j 20:21	25° $\mathring{O}$ 56'20	
max. Earth dist.	-4183 Sep 01 j 06:23	7° $\mathring{O}$ 43'13	30.67150 AU				
				conjunction	-4175 Sep 23 j 04:19	28° $\mathring{O}$ 39'35	14°33'46
conjunction	-4183 Sep 02 j 15:34	7° $\mathring{O}$ 46'36	16°32'27	minimum elong	-4175 Sep 23 j 04:42	28° $\mathring{O}$ 39'37	14°33'53
minimum elong	-4183 Sep 02 j 15:41	7° $\mathring{O}$ 46'37	16°32'37	max. Earth dist.	-4175 Sep 23 j 00:29	28° $\mathring{O}$ 39'12	30.61851 AU
retrograde	-4183 Dec 15 j 03:29	10° $\mathring{O}$ 27'55			-4175 Oct 27 j 17:54	0° $\mathring{M}$	
opposition	-4182 Mar 02 j 05:43	9° $\mathring{O}$ 04'21	17°36'33	retrograde	-4174 Jan 05 j 02:46	1° $\mathring{M}$ 20'04	
min. Earth dist.	-4182 Mar 03 j 12:40	9° $\mathring{O}$ 02'10	28.73359 AU		-4174 Mar 22 j 01:14	30° $\mathring{R}$ $\mathring{O}$	
direct	-4182 May 21 j 06:36	7° $\mathring{O}$ 37'55		opposition	-4174 Mar 23 j 23:36	29° $\mathring{O}$ 56'47	15°22'14
max. Earth dist.	-4182 Sep 04 j 05:19	10° $\mathring{O}$ 20'29	30.62250 AU	min. Earth dist.	-4174 Mar 24 j 03:08	29° $\mathring{O}$ 56'32	28.70604 AU
				direct	-4174 Jun 11 j 18:45	28° $\mathring{O}$ 31'40	
conjunction	-4182 Sep 05 j 11:34	10° $\mathring{O}$ 23'34	16°24'16		-4174 Aug 25 j 04:59	0° $\mathring{M}$	
minimum elong	-4182 Sep 05 j 11:42	10° $\mathring{O}$ 23'35	16°24'24				
retrograde	-4182 Dec 18 j 00:45	13° $\mathring{O}$ 05'06		conjunction	-4174 Sep 25 j 22:49	1° $\mathring{M}$ 14'07	14°11'05



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 15

Attention, astronomical year style is used: The year -4174 in astronomical counting style is the year 4175 BCE in historical counting style.

minimum elong	-4174 Sep 25 j 23:11	1° $\mathring{\text{M}}$ 14'10	14°11'10	min. Earth dist.	-4165 Apr 15 j 09:45	22° $\mathring{\text{M}}$ 13'20	29.48173 AU
max. Earth dist.	-4174 Sep 25 j 21:47	1° $\mathring{\text{M}}$ 14'01	30.66232 AU	opposition	-4165 Apr 16 j 13:05	22° $\mathring{\text{M}}$ 11'30	10°47'09
retrograde	-4173 Jan 07 j 23:54	3° $\mathring{\text{M}}$ 54'03		direct	-4165 Jul 05 j 09:01	20° $\mathring{\text{M}}$ 49'11	
opposition	-4173 Mar 26 j 21:59	2° $\mathring{\text{M}}$ 30'53	14°57'06				
min. Earth dist.	-4173 Mar 26 j 21:09	2° $\mathring{\text{M}}$ 30'57	28.75118 AU	conjunction	-4165 Oct 17 j 18:50	23° $\mathring{\text{M}}$ 21'17	9°49'35
direct	-4173 Jun 14 j 18:28	1° $\mathring{\text{M}}$ 06'02		minimum elong	-4165 Oct 17 j 19:14	23° $\mathring{\text{M}}$ 21'19	9°49'36
				max. Earth dist.	-4165 Oct 18 j 23:58	23° $\mathring{\text{M}}$ 24'05	31.51888 AU
conjunction	-4173 Sep 28 j 16:50	3° $\mathring{\text{M}}$ 47'36	13°46'53	retrograde	-4164 Jan 29 j 21:21	25° $\mathring{\text{M}}$ 53'07	
minimum elong	-4173 Sep 28 j 17:15	3° $\mathring{\text{M}}$ 47'39	13°46'58	min. Earth dist.	-4164 Apr 16 j 22:30	24° $\mathring{\text{M}}$ 33'48	29.61972 AU
max. Earth dist.	-4173 Sep 28 j 19:24	3° $\mathring{\text{M}}$ 47'52	30.71600 AU	opposition	-4164 Apr 18 j 05:55	24° $\mathring{\text{M}}$ 31'43	10°11'20
retrograde	-4172 Jan 10 j 17:49	6° $\mathring{\text{M}}$ 26'53		direct	-4164 Jul 07 j 01:47	23° $\mathring{\text{M}}$ 09'49	
opposition	-4172 Mar 28 j 20:02	5° $\mathring{\text{M}}$ 03'51	14°30'23				
min. Earth dist.	-4172 Mar 28 j 16:57	5° $\mathring{\text{M}}$ 04'04	28.80609 AU	conjunction	-4164 Oct 19 j 07:11	25° $\mathring{\text{M}}$ 40'36	9°15'53
direct	-4172 Jun 16 j 15:54	3° $\mathring{\text{M}}$ 39'15		minimum elong	-4164 Oct 19 j 07:33	25° $\mathring{\text{M}}$ 40'38	9°15'54
				max. Earth dist.	-4164 Oct 20 j 15:58	25° $\mathring{\text{M}}$ 43'44	31.66476 AU
conjunction	-4172 Sep 30 j 10:24	6° $\mathring{\text{M}}$ 19'50	13°21'16	retrograde	-4163 Jan 31 j 09:34	28° $\mathring{\text{M}}$ 11'21	
minimum elong	-4172 Sep 30 j 10:48	6° $\mathring{\text{M}}$ 19'52	13°21'21	opposition	-4163 Apr 20 j 22:07	26° $\mathring{\text{M}}$ 50'16	9°34'54
max. Earth dist.	-4172 Sep 30 j 16:15	6° $\mathring{\text{M}}$ 20'25	30.77963 AU	min. Earth dist.	-4163 Apr 19 j 12:57	26° $\mathring{\text{M}}$ 52'27	29.76639 AU
retrograde	-4171 Jan 12 j 11:06	8° $\mathring{\text{M}}$ 58'21		direct	-4163 Jul 09 j 17:35	25° $\mathring{\text{M}}$ 28'48	
opposition	-4171 Mar 31 j 17:17	7° $\mathring{\text{M}}$ 35'28	14°02'12				
min. Earth dist.	-4171 Mar 31 j 10:03	7° $\mathring{\text{M}}$ 35'58	28.87076 AU	conjunction	-4163 Oct 21 j 18:52	27° $\mathring{\text{M}}$ 58'14	8°41'39
direct	-4171 Jun 19 j 14:38	6° $\mathring{\text{M}}$ 11'07		minimum elong	-4163 Oct 21 j 19:14	27° $\mathring{\text{M}}$ 58'16	8°41'39
				max. Earth dist.	-4163 Oct 23 j 05:56	28° $\mathring{\text{M}}$ 01'33	31.81891 AU
conjunction	-4171 Oct 03 j 03:17	8° $\mathring{\text{M}}$ 50'38	12°54'19		-4163 Dec 23 j 10:14	0° $\mathring{\text{M}}$	
minimum elong	-4171 Oct 03 j 03:43	8° $\mathring{\text{M}}$ 50'41	12°54'24	retrograde	-4162 Feb 02 j 22:46	0° $\mathring{\text{M}}$ 27'52	
max. Earth dist.	-4171 Oct 03 j 12:12	8° $\mathring{\text{M}}$ 51'32	30.85319 AU		-4162 Mar 18 j 03:20	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$	
retrograde	-4170 Jan 15 j 04:33	11° $\mathring{\text{M}}$ 28'21		min. Earth dist.	-4162 Apr 22 j 00:42	29° $\mathring{\text{M}}$ 09'31	29.92102 AU
opposition	-4170 Apr 03 j 14:17	10° $\mathring{\text{M}}$ 05'35	13°32'36	opposition	-4162 Apr 23 j 13:35	29° $\mathring{\text{M}}$ 07'05	8°57'56
min. Earth dist.	-4170 Apr 03 j 04:13	10° $\mathring{\text{M}}$ 06'16	28.94568 AU	direct	-4162 Jul 12 j 10:53	27° $\mathring{\text{M}}$ 46'04	
direct	-4170 Jun 22 j 10:33	8° $\mathring{\text{M}}$ 41'30			-4162 Oct 17 j 23:24	0° $\mathring{\text{M}}$	
conjunction	-4170 Oct 05 j 19:31	11° $\mathring{\text{M}}$ 19'53	12°26'07	conjunction	-4162 Oct 24 j 05:47	0° $\mathring{\text{M}}$ 14'08	8°06'58
minimum elong	-4170 Oct 05 j 19:55	11° $\mathring{\text{M}}$ 19'55	12°26'11	minimum elong	-4162 Oct 24 j 06:07	0° $\mathring{\text{M}}$ 14'10	8°06'58
max. Earth dist.	-4170 Oct 06 j 08:30	11° $\mathring{\text{M}}$ 21'10	30.93727 AU	max. Earth dist.	-4162 Oct 25 j 19:36	0° $\mathring{\text{M}}$ 17'41	31.98037 AU
retrograde	-4169 Jan 17 j 19:52	13° $\mathring{\text{M}}$ 56'42		retrograde	-4161 Feb 05 j 10:54	2° $\mathring{\text{M}}$ 42'39	
opposition	-4169 Apr 06 j 10:36	12° $\mathring{\text{M}}$ 34'05	13°01'42	min. Earth dist.	-4161 Apr 24 j 13:45	1° $\mathring{\text{M}}$ 24'42	30.08297 AU
min. Earth dist.	-4169 Apr 05 j 20:38	12° $\mathring{\text{M}}$ 35'02	29.03112 AU	opposition	-4161 Apr 26 j 04:28	1° $\mathring{\text{M}}$ 22'10	8°20'34
direct	-4169 Jun 25 j 08:10	11° $\mathring{\text{M}}$ 10'18		direct	-4161 Jul 15 j 01:52	0° $\mathring{\text{M}}$ 01'34	
conjunction	-4169 Oct 08 j 11:03	13° $\mathring{\text{M}}$ 47'29	11°56'45	conjunction	-4161 Oct 26 j 16:14	2° $\mathring{\text{M}}$ 28'15	7°31'56
minimum elong	-4169 Oct 08 j 11:29	13° $\mathring{\text{M}}$ 47'31	11°56'49	minimum elong	-4161 Oct 26 j 16:33	2° $\mathring{\text{M}}$ 28'17	7°31'55
max. Earth dist.	-4169 Oct 09 j 02:47	13° $\mathring{\text{M}}$ 49'02	31.03206 AU	max. Earth dist.	-4161 Oct 28 j 08:35	2° $\mathring{\text{M}}$ 32'01	32.14870 AU
retrograde	-4168 Jan 20 j 11:20	16° $\mathring{\text{M}}$ 23'22		retrograde	-4160 Feb 07 j 20:08	4° $\mathring{\text{M}}$ 55'36	
opposition	-4168 Apr 08 j 06:06	15° $\mathring{\text{M}}$ 00'56	12°29'36	min. Earth dist.	-4160 Apr 26 j 00:38	3° $\mathring{\text{M}}$ 38'09	30.25149 AU
min. Earth dist.	-4168 Apr 07 j 12:37	15° $\mathring{\text{M}}$ 02'07	29.12763 AU	opposition	-4160 Apr 27 j 18:13	3° $\mathring{\text{M}}$ 35'26	7°42'54
direct	-4168 Jun 27 j 02:36	13° $\mathring{\text{M}}$ 37'28		direct	-4160 Jul 16 j 17:28	2° $\mathring{\text{M}}$ 15'14	
conjunction	-4168 Oct 10 j 02:07	16° $\mathring{\text{M}}$ 13'25	11°26'19	conjunction	-4160 Oct 28 j 01:48	4° $\mathring{\text{M}}$ 40'32	6°56'37
minimum elong	-4168 Oct 10 j 02:32	16° $\mathring{\text{M}}$ 13'28	11°26'22	minimum elong	-4160 Oct 28 j 02:05	4° $\mathring{\text{M}}$ 40'34	6°56'37
max. Earth dist.	-4168 Oct 10 j 22:17	16° $\mathring{\text{M}}$ 15'24	31.13794 AU	max. Earth dist.	-4160 Oct 29 j 19:49	4° $\mathring{\text{M}}$ 44'26	32.32322 AU
retrograde	-4167 Jan 22 j 01:08	18° $\mathring{\text{M}}$ 48'20		retrograde	-4159 Feb 09 j 05:18	7° $\mathring{\text{M}}$ 06'41	
min. Earth dist.	-4167 Apr 10 j 04:24	17° $\mathring{\text{M}}$ 27'31	29.23502 AU	min. Earth dist.	-4159 Apr 28 j 11:36	5° $\mathring{\text{M}}$ 49'40	30.42649 AU
opposition	-4167 Apr 11 j 01:06	17° $\mathring{\text{M}}$ 26'07	11°56'24	opposition	-4159 Apr 30 j 07:26	5° $\mathring{\text{M}}$ 46'49	7°05'00
direct	-4167 Jun 29 j 21:42	16° $\mathring{\text{M}}$ 03'00		direct	-4159 Jul 19 j 06:14	4° $\mathring{\text{M}}$ 27'02	
conjunction	-4167 Oct 12 j 16:15	18° $\mathring{\text{M}}$ 37'41	10°54'54	conjunction	-4159 Oct 30 j 10:37	6° $\mathring{\text{M}}$ 50'54	6°21'08
minimum elong	-4167 Oct 12 j 16:40	18° $\mathring{\text{M}}$ 37'44	10°54'57	minimum elong	-4159 Oct 30 j 10:53	6° $\mathring{\text{M}}$ 50'56	6°21'07
max. Earth dist.	-4167 Oct 13 j 14:52	18° $\mathring{\text{M}}$ 39'54	31.25465 AU	max. Earth dist.	-4159 Nov 01 j 07:49	6° $\mathring{\text{M}}$ 55'04	32.50395 AU
retrograde	-4166 Jan 24 j 16:57	21° $\mathring{\text{M}}$ 11'36		retrograde	-4158 Feb 11 j 12:15	9° $\mathring{\text{M}}$ 15'52	
opposition	-4166 Apr 13 j 19:23	19° $\mathring{\text{M}}$ 49'38	11°22'12	min. Earth dist.	-4158 Apr 30 j 21:53	7° $\mathring{\text{M}}$ 59'15	30.60777 AU
min. Earth dist.	-4166 Apr 12 j 18:30	19° $\mathring{\text{M}}$ 51'19	29.35327 AU	opposition	-4158 May 02 j 19:49	7° $\mathring{\text{M}}$ 56'17	6°26'58
direct	-4166 Jul 02 j 14:47	18° $\mathring{\text{M}}$ 26'54		direct	-4158 Jul 21 j 19:48	6° $\mathring{\text{M}}$ 36'53	
conjunction	-4166 Oct 15 j 05:58	21° $\mathring{\text{M}}$ 00'19	10°22'37	conjunction	-4158 Nov 01 j 18:36	8° $\mathring{\text{M}}$ 59'20	5°45'32
minimum elong	-4166 Oct 15 j 06:22	21° $\mathring{\text{M}}$ 00'21	10°22'40	minimum elong	-4158 Nov 01 j 18:50	8° $\mathring{\text{M}}$ 59'21	5°45'31
max. Earth dist.	-4166 Oct 16 j 08:55	21° $\mathring{\text{M}}$ 02'55	31.38185 AU	max. Earth dist.	-4158 Nov 03 j 17:13	9° $\mathring{\text{M}}$ 03'35	32.69092 AU
retrograde	-4165 Jan 27 j 06:16	23° $\mathring{\text{M}}$ 33'12		retrograde	-4157 Feb 13 j 20:54	11° $\mathring{\text{M}}$ 23'05	



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 16

Attention, astronomical year style is used: The year -4157 in astronomical counting style is the year 4158 BCE in historical counting style.

min. Earth dist.	-4157 May 03 j 06:14	10° <u>06</u> '56	30.79587 AU	conjunction	-4149 Nov 19 j 12:10	26° <u>05</u> '42	0°30'29
opposition	-4157 May 05 j 07:17	10° <u>03</u> '47	5°48'52	minimum elong	-4149 Nov 19 j 12:11	26° <u>05</u> '43	0°30'24
direct	-4157 Jul 24 j 06:38	8° <u>44</u> '46		max. Earth dist.	-4149 Nov 22 j 04:42	27° <u>00</u> '10	34.64978 AU
				retrograde	-4148 Mar 02 j 14:47	29° <u>08</u> '10	
conjunction	-4157 Nov 04 j 01:55	11° <u>05</u> '48	5°09'53	min. Earth dist.	-4148 May 20 j 09:24	27° <u>05</u> '59	32.76790 AU
minimum elong	-4157 Nov 04 j 02:09	11° <u>05</u> '49	5°09'51	opposition	-4148 May 23 j 04:16	27° <u>05</u> '55	0°14'19
max. Earth dist.	-4157 Nov 06 j 04:02	11° <u>10</u> '20	32.88452 AU	direct	-4148 Aug 11 j 06:25	26° <u>03</u> '42	
retrograde	-4156 Feb 16 j 02:50	13° <u>28</u> '22		desc. node	-4148 Oct 18 j 17:22	27° <u>04</u> '44	
min. Earth dist.	-4156 May 04 j 15:20	12° <u>12</u> '35	30.99084 AU				
opposition	-4156 May 06 j 17:58	12° <u>09</u> '21	5°10'46	conjunction	-4148 Nov 20 j 13:48	28° <u>04</u> '05	0°-3'-2
direct	-4156 Jul 25 j 17:42	10° <u>50</u> '44		minimum elong	-4148 Nov 20 j 13:48	28° <u>04</u> '05	0°03'08
				behind sun begin	-4148 Nov 20 j 07:28	28° <u>04</u> '35	
conjunction	-4156 Nov 05 j 08:24	13° <u>10</u> '23	4°34'15	behind sun end	-4148 Nov 20 j 20:08	28° <u>04</u> '35	
minimum elong	-4156 Nov 05 j 08:35	13° <u>10</u> '24	4°34'13	max. Earth dist.	-4148 Nov 23 j 08:24	28° <u>05</u> '40	34.88767 AU
max. Earth dist.	-4156 Nov 07 j 11:53	13° <u>15</u> '00	33.08496 AU		-4148 Dec 29 j 12:52	0° <u>00</u> '	
retrograde	-4155 Feb 17 j 10:45	15° <u>31</u> '44		retrograde	-4147 Mar 04 j 15:49	0° <u>05</u> '58	28
min. Earth dist.	-4155 May 06 j 21:33	14° <u>16</u> '28	31.19297 AU		-4147 May 13 j 05:26	30° <u>08</u> '	28
opposition	-4155 May 09 j 03:42	14° <u>13</u> '02	4°32'46	min. Earth dist.	-4147 May 22 j 13:33	29° <u>04</u> '35	33.00677 AU
direct	-4155 Jul 28 j 02:22	12° <u>54</u> '49		opposition	-4147 May 25 j 08:31	29° <u>04</u> '31	0°-20'-54
				direct	-4147 Aug 13 j 10:36	28° <u>02</u> '41	
conjunction	-4155 Nov 07 j 14:18	15° <u>13</u> '07	3°58'42		-4147 Nov 04 j 10:28	0° <u>00</u> '	
minimum elong	-4155 Nov 07 j 14:28	15° <u>13</u> '08	3°58'40	conjunction	-4147 Nov 22 j 14:51	0° <u>03</u> '51	0°-35'-56
max. Earth dist.	-4155 Nov 09 j 20:54	15° <u>17</u> '58	33.29225 AU	minimum elong	-4147 Nov 22 j 14:49	0° <u>03</u> '51	0°36'02
retrograde	-4154 Feb 19 j 16:36	17° <u>33</u> '19		max. Earth dist.	-4147 Nov 25 j 09:53	0° <u>04</u> '16	35.12748 AU
min. Earth dist.	-4154 May 09 j 05:25	16° <u>18</u> '26	31.40214 AU	retrograde	-4146 Mar 06 j 18:17	2° <u>04</u> '08	
opposition	-4154 May 11 j 12:55	16° <u>14</u> '57	3°54'55	min. Earth dist.	-4146 May 24 j 14:55	1° <u>03</u> '39	33.24764 AU
direct	-4154 Jul 30 j 10:56	14° <u>57</u> '10		opposition	-4146 May 27 j 12:00	1° <u>03</u> '30	0°-55'-36
				direct	-4146 Aug 15 j 13:41	0° <u>03</u> '17	01
conjunction	-4154 Nov 09 j 19:26	17° <u>14</u> '07	3°23'19				
minimum elong	-4154 Nov 09 j 19:34	17° <u>14</u> '07	3°23'16	conjunction	-4146 Nov 24 j 15:10	2° <u>04</u> '00	-1°-8'-25
max. Earth dist.	-4154 Nov 12 j 03:54	17° <u>19</u> '05	33.50624 AU	minimum elong	-4146 Nov 24 j 15:07	2° <u>04</u> '00	1°08'32
retrograde	-4153 Feb 21 j 23:06	19° <u>33</u> '09		max. Earth dist.	-4146 Nov 27 j 11:41	2° <u>02</u> '39	35.36905 AU
min. Earth dist.	-4153 May 11 j 10:35	18° <u>18</u> '48	31.61781 AU	retrograde	-4145 Mar 08 j 18:59	4° <u>03</u> '41	33
opposition	-4153 May 13 j 21:12	18° <u>15</u> '07	3°17'16	min. Earth dist.	-4145 May 26 j 17:26	3° <u>02</u> '31	33.49075 AU
direct	-4153 Aug 01 j 21:13	16° <u>57</u> '46		opposition	-4145 May 29 j 14:55	3° <u>01</u> '85	-1°-29'-45
				direct	-4145 Aug 17 j 16:07	2° <u>04</u> '44	
conjunction	-4153 Nov 11 j 23:59	19° <u>13</u> '26	2°48'07				
minimum elong	-4153 Nov 12 j 00:06	19° <u>13</u> '26	2°48'04	conjunction	-4145 Nov 26 j 15:03	4° <u>01</u> '32	-1°-40'-23
max. Earth dist.	-4153 Nov 14 j 10:34	19° <u>18</u> '33	33.72610 AU	minimum elong	-4145 Nov 26 j 14:59	4° <u>01</u> '32	1°40'30
retrograde	-4152 Feb 24 j 05:18	21° <u>31</u> '19		max. Earth dist.	-4145 Nov 29 j 13:02	4° <u>01</u> '16	35.61285 AU
min. Earth dist.	-4152 May 12 j 16:39	20° <u>17</u> '23	31.83943 AU	retrograde	-4144 Mar 09 j 17:30	6° <u>01</u> '41	
opposition	-4152 May 15 j 04:44	20° <u>13</u> '39	2°39'55	min. Earth dist.	-4144 May 27 j 17:47	5° <u>08</u> '51	33.73627 AU
direct	-4152 Aug 03 j 04:46	18° <u>56</u> '45		opposition	-4144 May 30 j 16:49	5° <u>04</u> '37	-2°-3'-18
				direct	-4144 Aug 18 j 20:47	3° <u>05</u> '51	
conjunction	-4152 Nov 13 j 03:58	21° <u>11</u> '07	2°13'12				
minimum elong	-4152 Nov 13 j 04:03	21° <u>11</u> '07	2°13'09	conjunction	-4144 Nov 27 j 14:10	5° <u>05</u> '31	-2°-11'-49
max. Earth dist.	-4152 Nov 15 j 16:47	21° <u>16</u> '23	33.95131 AU	minimum elong	-4144 Nov 27 j 14:06	5° <u>05</u> '31	2°11'57
retrograde	-4151 Feb 25 j 07:42	23° <u>27</u> '53		max. Earth dist.	-4144 Nov 30 j 12:47	6° <u>01</u> '15	35.85910 AU
min. Earth dist.	-4151 May 14 j 21:33	22° <u>14</u> '25	32.06599 AU	retrograde	-4143 Mar 11 j 16:43	8° <u>03</u> '39	
opposition	-4151 May 17 j 11:35	22° <u>10</u> '34	2°02'53	min. Earth dist.	-4143 May 29 j 17:50	6° <u>03</u> '11	33.98477 AU
direct	-4151 Aug 05 j 13:18	20° <u>54</u> '07		opposition	-4143 Jun 01 j 18:22	6° <u>04</u> '53	-2°-36'-15
				direct	-4143 Aug 20 j 22:47	5° <u>03</u> '58	
conjunction	-4151 Nov 15 j 07:06	23° <u>07</u> '13	1°38'35				
minimum elong	-4151 Nov 15 j 07:10	23° <u>07</u> '13	1°38'31	conjunction	-4143 Nov 29 j 12:48	7° <u>03</u> '03	-2°-42'-42
max. Earth dist.	-4151 Nov 17 j 20:54	23° <u>12</u> '32	34.18081 AU	minimum elong	-4143 Nov 29 j 12:42	7° <u>03</u> '02	2°42'49
retrograde	-4150 Feb 27 j 10:48	25° <u>22</u> '52		max. Earth dist.	-4143 Dec 02 j 13:40	7° <u>04</u> '55	36.10820 AU
min. Earth dist.	-4150 May 17 j 01:59	24° <u>09</u> '52	32.29689 AU	retrograde	-4142 Mar 13 j 13:29	9° <u>04</u> '11	
opposition	-4150 May 19 j 17:56	24° <u>05</u> '55	1°26'15	min. Earth dist.	-4142 May 31 j 18:07	8° <u>03</u> '04	34.23610 AU
direct	-4150 Aug 07 j 19:33	22° <u>49</u> '54		opposition	-4142 Jun 03 j 19:17	8° <u>03</u> '14	-3°-8'-34
				direct	-4142 Aug 23 j 01:21	7° <u>01</u> '42	
conjunction	-4150 Nov 17 j 09:59	25° <u>01</u> '45	1°04'20				
minimum elong	-4150 Nov 17 j 10:02	25° <u>01</u> '45	1°04'16	conjunction	-4142 Dec 01 j 10:54	9° <u>02</u> '13	-3°-13'00
max. Earth dist.	-4150 Nov 20 j 02:18	25° <u>07</u> '14	34.41392 AU	minimum elong	-4142 Dec 01 j 10:48	9° <u>02</u> '12	3°13'08
retrograde	-4149 Mar 01 j 11:41	27° <u>16</u> '18		max. Earth dist.	-4142 Dec 04 j 11:58	9° <u>02</u> '70	36.36000 AU
min. Earth dist.	-4149 May 19 j 06:48	26° <u>03</u> '40	32.53107 AU	retrograde	-4141 Mar 15 j 11:49	11° <u>02</u> '24	
opposition	-4149 May 21 j 23:26	25° <u>59</u> '42	0°50'03	min. Earth dist.	-4141 Jun 02 j 16:12	10° <u>01</u> '42	34.49022 AU
direct	-4149 Aug 10 j 02:17	24° <u>44</u> '06					



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 17

Attention, astronomical year style is used: The year -4141 in astronomical counting style is the year 4142 BCE in historical counting style.

opposition	-4141 Jun 05 j 19:25	10°M13'17	-3°-40'-14	opposition	-4133 Jun 19 j 02:26	23°M04'08	-7°-29'-44
direct	-4141 Aug 25 j 00:44	9°M00'38		direct	-4133 Sep 07 j 08:39	21°M54'13	
conjunction	-4141 Dec 03 j 08:35	11°M02'07	-3°-42'-43	conjunction	-4133 Dec 15 j 22:22	23°M48'17	-7°-18'-33
minimum elong	-4141 Dec 03 j 08:27	11°M02'06	3°42'50	minimum elong	-4133 Dec 15 j 22:10	23°M48'16	7°18'42
max. Earth dist.	-4141 Dec 06 j 11:43	11°M08'05	36.61411 AU	max. Earth dist.	-4133 Dec 19 j 04:42	23°M54'09	38.65649 AU
retrograde	-4140 Mar 16 j 09:40	13°M07'23		retrograde	-4132 Mar 28 j 23:26	25°M46'38	
min. Earth dist.	-4140 Jun 03 j 15:58	11°M58'00	34.74651 AU	min. Earth dist.	-4132 Jun 16 j 15:02	24°M39'41	36.80011 AU
opposition	-4140 Jun 06 j 19:10	11°M53'36	-4°-11'-15	opposition	-4132 Jun 19 j 21:55	24°M35'14	-7°-55'-25
direct	-4140 Aug 25 j 23:30	10°M41'20		direct	-4132 Sep 08 j 04:07	23°M25'34	
conjunction	-4140 Dec 04 j 05:40	12°M41'50	-4°-11'-50	conjunction	-4132 Dec 16 j 15:57	25°M18'46	-7°-42'-46
minimum elong	-4140 Dec 04 j 05:32	12°M41'49	4°11'58	minimum elong	-4132 Dec 16 j 15:44	25°M18'45	7°42'57
max. Earth dist.	-4140 Dec 07 j 09:07	12°M47'47	36.87005 AU	max. Earth dist.	-4132 Dec 19 j 22:35	25°M24'37	38.90776 AU
retrograde	-4139 Mar 18 j 08:24	14°M46'12		retrograde	-4131 Mar 30 j 18:35	27°M16'19	
min. Earth dist.	-4139 Jun 05 j 13:14	13°M37'14	35.00434 AU	min. Earth dist.	-4131 Jun 18 j 10:17	26°M09'34	37.05341 AU
opposition	-4139 Jun 08 j 18:14	13°M32'46	-4°-41'-37	opposition	-4131 Jun 21 j 17:07	26°M05'09	-8°-20'-25
direct	-4139 Aug 27 j 20:56	12°M20'53		direct	-4131 Sep 09 j 22:33	24°M55'45	
conjunction	-4139 Dec 06 j 02:22	14°M20'25	-4°-40'-20	conjunction	-4131 Dec 18 j 09:24	26°M48'07	-8°-6'-21
minimum elong	-4139 Dec 06 j 02:13	14°M20'24	4°40'28	minimum elong	-4131 Dec 18 j 09:12	26°M48'06	8°06'30
max. Earth dist.	-4139 Dec 09 j 06:46	14°M26'23	37.12702 AU	max. Earth dist.	-4131 Dec 21 j 17:10	26°M54'01	39.15906 AU
retrograde	-4138 Mar 20 j 06:14	16°M23'54		retrograde	-4130 Apr 01 j 10:49	28°M44'52	
min. Earth dist.	-4138 Jun 07 j 12:03	15°M15'15	35.26314 AU	min. Earth dist.	-4130 Jun 20 j 04:33	27°M38'22	37.30670 AU
opposition	-4138 Jun 10 j 16:58	15°M10'49	-5°-11'-18	opposition	-4130 Jun 23 j 11:41	27°M33'57	-8°-44'-45
direct	-4138 Jun 18 j 12:17	15°RM		direct	-4130 Sep 11 j 18:47	26°M24'49	
conjunction	-4138 Aug 29 j 19:22	13°M59'18		conjunction	-4130 Dec 20 j 02:17	28°M16'23	-8°-29'-18
minimum elong	-4138 Nov 05 j 13:08	15°M		minimum elong	-4130 Dec 20 j 02:04	28°M16'22	8°29'29
max. Earth dist.	-4138 Dec 07 j 22:47	15°M57'54	-5°-8'-14	max. Earth dist.	-4130 Dec 23 j 09:36	28°M22'13	39.41039 AU
minimum elong	-4138 Dec 07 j 22:37	15°M57'53	5°08'24	retrograde	-4129 Mar 02 j 23:07	0°M	
max. Earth dist.	-4138 Dec 11 j 04:09	16°M03'55	37.38445 AU	retrograde	-4129 Apr 03 j 03:55	0°M12'23	
retrograde	-4137 Mar 22 j 02:31	18°M00'31		min. Earth dist.	-4129 Jun 21 j 21:47	29°M06'10	37.56017 AU
min. Earth dist.	-4137 Jun 09 j 09:30	16°M52'13	35.52188 AU	opposition	-4129 Jun 25 j 05:54	29°M01'43	-9°-8'-24
opposition	-4137 Jun 12 j 15:01	16°M47'45	-5°-40'-19	direct	-4129 Sep 13 j 12:47	27°M52'52	
direct	-4137 Aug 31 j 19:11	15°M36'36		conjunction	-4129 Dec 21 j 18:58	29°M43'40	-8°-51'-38
conjunction	-4137 Dec 09 j 18:42	17°M34'18	-5°-35'-31	minimum elong	-4129 Dec 21 j 18:46	29°M43'39	8°51'47
minimum elong	-4137 Dec 09 j 18:32	17°M34'17	5°35'40	max. Earth dist.	-4129 Dec 25 j 03:41	29°M49'34	39.66168 AU
max. Earth dist.	-4137 Dec 12 j 23:39	17°M40'14	37.64130 AU	retrograde	-4129 Dec 31 j 03:17	0°M	
retrograde	-4136 Mar 22 j 23:19	19°M36'02		retrograde	-4128 Apr 03 j 17:34	1°M38'55	
min. Earth dist.	-4136 Jun 10 j 06:27	18°M28'04	35.78002 AU	min. Earth dist.	-4128 Jun 22 j 16:07	0°M32'56	37.81340 AU
opposition	-4136 Jun 13 j 12:32	18°M23'36	-6°-8'-40	opposition	-4128 Jun 25 j 23:35	0°M28'32	-9°-31'-22
direct	-4136 Sep 01 j 16:46	17°M12'47		direct	-4128 Jul 18 j 02:25	30°RM	
conjunction	-4136 Dec 10 j 14:23	19°M09'34	-6°-2'-12	conjunction	-4128 Sep 14 j 08:52	29°M19'59	
minimum elong	-4136 Dec 10 j 14:13	19°M09'33	6°02'22	minimum elong	-4128 Nov 08 j 23:25	0°M	
max. Earth dist.	-4136 Dec 13 j 20:32	19°M15'33	37.89714 AU	conjunction	-4128 Dec 22 j 11:13	1°M10'01	-9°-13'-20
retrograde	-4135 Mar 24 j 15:46	21°M10'28		minimum elong	-4128 Dec 22 j 11:00	1°M10'00	9°13'30
min. Earth dist.	-4135 Jun 12 j 04:12	20°M02'44	36.03685 AU	max. Earth dist.	-4128 Dec 25 j 19:19	1°M15'51	39.91270 AU
opposition	-4135 Jun 15 j 09:43	19°M58'18	-6°-36'-21	retrograde	-4127 Apr 05 j 10:26	3°M04'35	
direct	-4135 Sep 03 j 16:06	18°M47'49		min. Earth dist.	-4127 Jun 24 j 08:17	1°M58'55	38.06617 AU
conjunction	-4135 Dec 12 j 09:23	20°M43'40	-6°-28'-16	opposition	-4127 Jun 27 j 16:55	1°M54'28	-9°-53'-41
minimum elong	-4135 Dec 12 j 09:12	20°M43'39	6°28'24	direct	-4127 Sep 16 j 01:35	0°M46'12	
max. Earth dist.	-4135 Dec 15 j 14:41	20°M49'33	38.15156 AU	conjunction	-4127 Dec 24 j 03:02	2°M35'32	-9°-34'-26
retrograde	-4134 Mar 26 j 10:23	22°M43'43		minimum elong	-4127 Dec 24 j 02:50	2°M35'31	9°34'36
min. Earth dist.	-4134 Jun 13 j 23:43	21°M36'18	36.29234 AU	max. Earth dist.	-4127 Dec 27 j 11:53	2°M41'22	40.16285 AU
opposition	-4134 Jun 17 j 06:22	21°M31'50	-7°-3'-23	retrograde	-4126 Apr 07 j 03:42	4°M29'25	
direct	-4134 Sep 05 j 13:03	20°M21'38		min. Earth dist.	-4126 Jun 26 j 02:21	3°M23'58	38.31789 AU
conjunction	-4134 Dec 14 j 04:07	22°M16'35	-6°-53'-43	opposition	-4126 Jun 29 j 10:03	3°M19'35	-10°-15'-21
minimum elong	-4134 Dec 14 j 03:55	22°M16'34	6°53'53	direct	-4126 Sep 17 j 17:05	2°M11'37	
max. Earth dist.	-4134 Dec 17 j 10:32	22°M22'31	38.40451 AU	conjunction	-4126 Dec 25 j 18:50	4°M00'16	-9°-54'-55
retrograde	-4133 Mar 28 j 04:55	24°M15'47		minimum elong	-4126 Dec 25 j 18:37	4°M00'15	9°55'06
min. Earth dist.	-4133 Jun 15 j 20:42	23°M08'32	36.54663 AU	max. Earth dist.	-4126 Dec 29 j 03:47	4°M06'04	40.41165 AU



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Attention, astronomical year style is used: The year -4125 in astronomical counting style is the year 4126 BCE in historical counting style.

retrograde	-4125 Apr 08 j 19:38	5°♂53'28		direct	-4117 Sep 30 j 12:01	14°♂23'57	
min. Earth dist.	-4125 Jun 27 j 18:29	4°♂48'18	38.56778 AU				
opposition	-4125 Jul 01 j 02:27	4°♂43'56	-10°-36'-23	conjunction	-4116 Jan 07 j 02:31	16°♂06'56	-12°-33'-54
direct	-4125 Sep 19 j 09:55	3°♂36'15		minimum elong	-4116 Jan 07 j 02:20	16°♂06'55	12°34'06
				max. Earth dist.	-4116 Jan 10 j 09:48	16°♂12'20	42.53694 AU
conjunction	-4125 Dec 27 j 10:12	5°♂24'13	-10°-14'-50	retrograde	-4116 Apr 19 j 23:07	17°♂54'34	
minimum elong	-4125 Dec 27 j 10:00	5°♂24'12	10°15'01	min. Earth dist.	-4116 Jul 09 j 11:07	16°♂51'07	40.70220 AU
max. Earth dist.	-4125 Dec 30 j 18:16	5°♂29'55	40.65821 AU	opposition	-4116 Jul 12 j 15:40	16°♂47'03	-13°-18'-42
retrograde	-4124 Apr 09 j 12:21	7°♂16'46		direct	-4116 Oct 01 j 03:13	15°♂41'27	
min. Earth dist.	-4124 Jun 28 j 11:09	6°♂11'50	38.81531 AU				
opposition	-4124 Jul 01 j 18:46	6°♂07'30	-10°-56'-48	conjunction	-4115 Jan 07 j 15:08	17°♂23'52	-12°-48'-48
direct	-4124 Sep 20 j 01:24	5°♂00'05		minimum elong	-4115 Jan 07 j 14:56	17°♂23'51	12°48'58
				max. Earth dist.	-4115 Jan 10 j 21:36	17°♂29'12	42.76390 AU
conjunction	-4124 Dec 28 j 01:20	6°♂47'25	-10°-34'-10	retrograde	-4115 Apr 21 j 11:18	19°♂10'58	
minimum elong	-4124 Dec 28 j 01:06	6°♂47'24	10°34'21	min. Earth dist.	-4115 Jul 10 j 23:27	18°♂07'47	40.93023 AU
max. Earth dist.	-4124 Dec 31 j 10:02	6°♂53'08	40.90208 AU	opposition	-4115 Jul 14 j 04:49	18°♂03'41	-13°-33'-49
retrograde	-4123 Apr 11 j 01:39	8°♂39'20		direct	-4115 Oct 02 j 17:07	16°♂58'19	
min. Earth dist.	-4123 Jun 30 j 04:05	7°♂34'34	39.05975 AU				
opposition	-4123 Jul 03 j 10:43	7°♂30'18	-11°-16'-37	conjunction	-4114 Jan 09 j 03:37	18°♂40'12	-13°-3'-9
direct	-4123 Sep 21 j 19:22	6°♂23'09		minimum elong	-4114 Jan 09 j 03:26	18°♂40'12	13°03'21
				max. Earth dist.	-4114 Jan 12 j 10:06	18°♂45'30	42.98895 AU
conjunction	-4123 Dec 29 j 16:10	8°♂09'48	-10°-52'-57	retrograde	-4114 Apr 23 j 02:09	20°♂26'47	
minimum elong	-4123 Dec 29 j 15:58	8°♂09'48	10°53'08	min. Earth dist.	-4114 Jul 12 j 13:39	19°♂23'45	41.15621 AU
max. Earth dist.	-4122 Jan 01 j 23:27	8°♂15'24	41.14285 AU	opposition	-4114 Jul 15 j 17:45	19°♂19'45	-13°-48'-22
retrograde	-4122 Apr 12 j 15:27	10°♂01'05		direct	-4114 Oct 04 j 04:14	18°♂14'36	
min. Earth dist.	-4122 Jul 01 j 19:08	8°♂56'34	39.30111 AU				
opposition	-4122 Jul 05 j 02:14	8°♂52'17	-11°-35'-49	conjunction	-4113 Jan 10 j 16:04	19°♂55'59	-13°-17'00
direct	-4122 Sep 23 j 11:32	7°♂45'23		minimum elong	-4113 Jan 10 j 15:53	19°♂55'58	13°17'11
				max. Earth dist.	-4113 Jan 13 j 22:25	20°♂01'15	43.21173 AU
conjunction	-4122 Dec 31 j 06:42	9°♂31'23	-11°-11'-10	retrograde	-4113 Apr 24 j 15:03	21°♂42'03	
minimum elong	-4122 Dec 31 j 06:28	9°♂31'22	11°11'21	min. Earth dist.	-4113 Jul 14 j 02:29	20°♂39'13	41.37932 AU
max. Earth dist.	-4121 Jan 03 j 14:27	9°♂36'58	41.38046 AU	opposition	-4113 Jul 17 j 06:18	20°♂35'15	-14°-2'-23
retrograde	-4121 Apr 14 j 05:02	11°♂22'01		direct	-4113 Oct 05 j 15:56	19°♂30'19	
min. Earth dist.	-4121 Jul 03 j 11:49	10°♂17'38	39.53942 AU				
opposition	-4121 Jul 06 j 17:26	10°♂13'27	-11°-54'-27	conjunction	-4112 Jan 12 j 04:09	21°♂11'13	-13°-30'-21
direct	-4121 Sep 25 j 03:51	9°♂06'45		minimum elong	-4112 Jan 12 j 03:58	21°♂11'12	13°30'33
				max. Earth dist.	-4112 Jan 15 j 09:04	21°♂16'21	43.43128 AU
conjunction	-4120 Jan 01 j 20:55	10°♂52'06	-11°-28'-50	retrograde	-4112 Apr 25 j 04:06	22°♂56'46	
minimum elong	-4120 Jan 01 j 20:43	10°♂52'05	11°29'02	min. Earth dist.	-4112 Jul 14 j 15:30	21°♂54'06	41.59906 AU
max. Earth dist.	-4120 Jan 05 j 03:57	10°♂57'37	41.61534 AU	opposition	-4112 Jul 17 j 18:40	21°♂50'11	-14°-15'-54
retrograde	-4120 Apr 14 j 20:18	12°♂42'06		direct	-4112 Oct 06 j 03:41	20°♂45'28	
min. Earth dist.	-4120 Jul 04 j 01:53	11°♂37'56	39.77516 AU				
opposition	-4120 Jul 07 j 08:01	11°♂33'44	-12°-12'-29	conjunction	-4111 Jan 12 j 16:14	22°♂25'53	-13°-43'-13
direct	-4120 Sep 25 j 17:21	10°♂27'15		minimum elong	-4111 Jan 12 j 16:05	22°♂25'52	13°43'25
				max. Earth dist.	-4111 Jan 15 j 21:28	22°♂31'01	43.64717 AU
conjunction	-4119 Jan 02 j 10:40	12°♂11'59	-11°-45'-56	retrograde	-4111 Apr 26 j 13:22	24°♂10'56	
minimum elong	-4119 Jan 02 j 10:27	12°♂11'58	11°46'08	min. Earth dist.	-4111 Jul 16 j 05:11	23°♂08'23	41.81472 AU
max. Earth dist.	-4119 Jan 05 j 17:25	12°♂17'26	41.84793 AU	opposition	-4111 Jul 19 j 06:51	23°♂04'33	-14°-28'-55
retrograde	-4119 Apr 16 j 11:05	14°♂01'22		direct	-4111 Oct 07 j 18:22	22°♂00'02	
min. Earth dist.	-4119 Jul 05 j 17:04	12°♂57'21	40.00910 AU				
opposition	-4119 Jul 08 j 22:31	12°♂53'12	-12°-29'-56	conjunction	-4110 Jan 14 j 03:59	23°♂39'57	-13°-55'-37
direct	-4119 Sep 27 j 06:34	11°♂46'56		minimum elong	-4110 Jan 14 j 03:49	23°♂39'56	13°55'49
				max. Earth dist.	-4110 Jan 17 j 07:22	23°♂44'57	43.85893 AU
conjunction	-4118 Jan 04 j 00:13	13°♂31'03	-12°-2'-29	retrograde	-4110 Apr 28 j 00:19	25°♂24'30	
minimum elong	-4118 Jan 04 j 00:01	13°♂31'02	12°02'41	min. Earth dist.	-4110 Jul 17 j 17:01	24°♂22'08	42.02609 AU
max. Earth dist.	-4118 Jan 07 j 07:42	13°♂36'31	42.07897 AU	opposition	-4110 Jul 20 j 18:45	24°♂18'18	-14°-41'-27
retrograde	-4118 Apr 17 j 23:30	15°♂19'49		direct	-4110 Oct 09 j 07:05	23°♂13'58	
min. Earth dist.	-4118 Jul 07 j 07:16	14°♂15'59	40.24143 AU				
opposition	-4118 Jul 10 j 12:34	14°♂11'52	-12°-46'-46	conjunction	-4109 Jan 15 j 15:37	24°♂53'23	-14°-7'-35
direct	-4118 Sep 28 j 21:58	13°♂05'48		minimum elong	-4109 Jan 15 j 15:29	24°♂53'23	14°07'46
				max. Earth dist.	-4109 Jan 18 j 18:39	24°♂58'20	44.06632 AU
conjunction	-4117 Jan 05 j 13:28	14°♂49'21	-12°-18'-28	retrograde	-4109 Apr 29 j 11:06	26°♂37'26	
minimum elong	-4117 Jan 05 j 13:16	14°♂49'20	12°18'39	min. Earth dist.	-4109 Jul 19 j 06:33	25°♂35'08	42.23321 AU
max. Earth dist.	-4117 Jan 08 j 19:48	14°♂54'43	42.30859 AU	opposition	-4109 Jul 22 j 06:19	25°♂31'25	-14°-53'-31
retrograde	-4117 Apr 19 j 12:33	16°♂37'32		direct	-4109 Oct 10 j 19:43	24°♂27'14	
min. Earth dist.	-4117 Jul 08 j 20:27	15°♂33'55	40.47254 AU				
opposition	-4117 Jul 12 j 02:11	15°♂29'48	-13°-3'-2	conjunction	-4108 Jan 17 j 03:01	26°♂06'10	-14°-19'-4



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 19

Attention, astronomical year style is used: The year -4108 in astronomical counting style is the year 4109 BCE in historical counting style.

minimum elong	-4108 Jan 17 j 02:52	26° $\mathring{\text{A}}$ 06'10	14°19'16	conjunction	-4100 Jan 26 j 13:57	5° $\mathring{\text{C}}$ 28'53	-15°-34'-40
max. Earth dist.	-4108 Jan 20 j 05:23	26° $\mathring{\text{A}}$ 11'03	44.26982 AU	minimum elong	-4100 Jan 26 j 13:52	5° $\mathring{\text{C}}$ 28'52	15°34'52
retrograde	-4108 Apr 29 j 22:42	27° $\mathring{\text{A}}$ 49'43		max. Earth dist.	-4100 Jan 29 j 10:47	5° $\mathring{\text{C}}$ 33'14	45.79758 AU
min. Earth dist.	-4108 Jul 19 j 17:53	26° $\mathring{\text{A}}$ 47'34	42.43652 AU	retrograde	-4100 May 09 j 10:15	7° $\mathring{\text{C}}$ 09'02	
opposition	-4108 Jul 22 j 17:34	26° $\mathring{\text{A}}$ 43'52	-15°-5'-6	min. Earth dist.	-4100 Jul 29 j 09:08	6° $\mathring{\text{C}}$ 08'02	43.96445 AU
direct	-4108 Oct 11 j 06:50	25° $\mathring{\text{A}}$ 39'51		opposition	-4100 Aug 01 j 03:28	6° $\mathring{\text{C}}$ 04'42	-16°-20'-44
				direct	-4100 Oct 20 j 15:40	5° $\mathring{\text{C}}$ 02'04	
conjunction	-4107 Jan 17 j 13:50	27° $\mathring{\text{A}}$ 18'18	-14°-30'-7				
minimum elong	-4107 Jan 17 j 13:43	27° $\mathring{\text{A}}$ 18'18	14°30'19	conjunction	-4099 Jan 26 j 23:36	6° $\mathring{\text{C}}$ 37'25	-15°-42'-13
max. Earth dist.	-4107 Jan 20 j 15:02	27° $\mathring{\text{A}}$ 23'05	44.46978 AU	minimum elong	-4099 Jan 26 j 23:31	6° $\mathring{\text{C}}$ 37'25	15°42'25
retrograde	-4107 May 01 j 11:53	29° $\mathring{\text{A}}$ 01'22		max. Earth dist.	-4099 Jan 29 j 20:17	6° $\mathring{\text{C}}$ 41'45	45.97416 AU
min. Earth dist.	-4107 Jul 21 j 05:47	27° $\mathring{\text{A}}$ 59'19	42.63674 AU	retrograde	-4099 May 10 j 16:44	8° $\mathring{\text{C}}$ 17'13	
opposition	-4107 Jul 24 j 04:43	27° $\mathring{\text{A}}$ 55'40	-15°-16'-12	min. Earth dist.	-4099 Jul 30 j 20:49	7° $\mathring{\text{C}}$ 16'17	44.13991 AU
direct	-4107 Oct 12 j 15:37	26° $\mathring{\text{A}}$ 51'48		opposition	-4099 Aug 02 j 12:58	7° $\mathring{\text{C}}$ 13'03	-16°-28'-14
				direct	-4099 Oct 22 j 03:36	6° $\mathring{\text{C}}$ 10'35	
conjunction	-4106 Jan 19 j 00:46	28° $\mathring{\text{A}}$ 29'49	-14°-40'-41				
minimum elong	-4106 Jan 19 j 00:37	28° $\mathring{\text{A}}$ 29'48	14°40'53	conjunction	-4098 Jan 28 j 09:19	7° $\mathring{\text{C}}$ 45'34	-15°-49'-22
max. Earth dist.	-4106 Jan 22 j 02:25	28° $\mathring{\text{A}}$ 34'35	44.66696 AU	minimum elong	-4098 Jan 28 j 09:14	7° $\mathring{\text{C}}$ 45'34	15°49'33
	-4106 Mar 30 j 20:19	0° $\mathring{\text{C}}$		max. Earth dist.	-4098 Jan 31 j 04:22	7° $\mathring{\text{C}}$ 49'48	46.14605 AU
retrograde	-4106 May 02 j 20:53	0° $\mathring{\text{C}}$ 12'24		retrograde	-4098 May 12 j 00:56	9° $\mathring{\text{C}}$ 25'00	
	-4106 Jun 05 j 06:04	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$		min. Earth dist.	-4098 Aug 01 j 06:09	8° $\mathring{\text{C}}$ 24'12	44.31040 AU
min. Earth dist.	-4106 Jul 22 j 17:29	29° $\mathring{\text{A}}$ 10'28	42.83422 AU	opposition	-4098 Aug 03 j 22:03	8° $\mathring{\text{C}}$ 20'59	-16°-35'-21
opposition	-4106 Jul 25 j 15:24	29° $\mathring{\text{A}}$ 06'53	-15°-26'-49	direct	-4098 Oct 23 j 14:40	7° $\mathring{\text{C}}$ 18'38	
direct	-4106 Oct 14 j 03:54	28° $\mathring{\text{A}}$ 03'10					
conjunction	-4105 Jan 20 j 11:24	29° $\mathring{\text{A}}$ 40'44	-14°-50'-48	conjunction	-4097 Jan 29 j 18:45	8° $\mathring{\text{C}}$ 53'16	-15°-56'-10
minimum elong	-4105 Jan 20 j 11:17	29° $\mathring{\text{A}}$ 40'44	14°51'00	minimum elong	-4097 Jan 29 j 18:41	8° $\mathring{\text{C}}$ 53'16	15°56'22
max. Earth dist.	-4105 Jan 23 j 11:33	29° $\mathring{\text{A}}$ 45'25	44.86171 AU	max. Earth dist.	-4097 Feb 01 j 12:23	8° $\mathring{\text{C}}$ 57'23	46.31287 AU
	-4105 Feb 01 j 22:50	0° $\mathring{\text{C}}$		retrograde	-4097 May 13 j 12:43	10° $\mathring{\text{C}}$ 32'19	
retrograde	-4105 May 04 j 05:44	1° $\mathring{\text{C}}$ 22'53		min. Earth dist.	-4097 Aug 02 j 17:08	9° $\mathring{\text{C}}$ 31'33	44.47600 AU
min. Earth dist.	-4105 Jul 24 j 03:43	0° $\mathring{\text{C}}$ 21'08	43.02939 AU	opposition	-4097 Aug 05 j 07:09	9° $\mathring{\text{C}}$ 28'26	-16°-42'-5
opposition	-4105 Jul 27 j 01:56	0° $\mathring{\text{C}}$ 17'32	-15°-36'-57	direct	-4097 Oct 24 j 22:09	8° $\mathring{\text{C}}$ 26'12	
	-4105 Aug 10 j 12:29	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$					
direct	-4105 Oct 15 j 15:39	29° $\mathring{\text{A}}$ 14'00		conjunction	-4096 Jan 31 j 04:01	10° $\mathring{\text{C}}$ 00'29	-16°-2'-36
	-4105 Dec 18 j 02:38	0° $\mathring{\text{C}}$		minimum elong	-4096 Jan 31 j 03:58	10° $\mathring{\text{C}}$ 00'29	16°02'48
conjunction	-4104 Jan 21 j 21:46	0° $\mathring{\text{C}}$ 51'10	-15°00'-27	max. Earth dist.	-4096 Feb 02 j 21:17	10° $\mathring{\text{C}}$ 04'33	46.47508 AU
minimum elong	-4104 Jan 21 j 21:38	0° $\mathring{\text{C}}$ 51'09	15°00'39	retrograde	-4096 May 13 j 21:13	11° $\mathring{\text{C}}$ 39'08	
max. Earth dist.	-4104 Jan 24 j 22:13	0° $\mathring{\text{C}}$ 55'50	45.05412 AU	min. Earth dist.	-4096 Aug 03 j 02:38	10° $\mathring{\text{C}}$ 38'26	44.63701 AU
retrograde	-4104 May 04 j 14:37	2° $\mathring{\text{C}}$ 32'53		opposition	-4096 Aug 05 j 15:51	10° $\mathring{\text{C}}$ 35'22	-16°-48'-27
min. Earth dist.	-4104 Jul 24 j 15:32	1° $\mathring{\text{C}}$ 31'15	43.22219 AU	direct	-4096 Oct 25 j 07:08	9° $\mathring{\text{C}}$ 33'14	
opposition	-4104 Jul 27 j 12:16	1° $\mathring{\text{C}}$ 27'44	-15°-46'-37				
direct	-4104 Oct 16 j 03:47	0° $\mathring{\text{C}}$ 24'23		conjunction	-4095 Jan 31 j 12:58	11° $\mathring{\text{C}}$ 07'09	-16°-8'-39
conjunction	-4103 Jan 22 j 08:04	2° $\mathring{\text{C}}$ 01'09	-15°-9'-39	minimum elong	-4095 Jan 31 j 12:54	11° $\mathring{\text{C}}$ 07'09	16°08'52
minimum elong	-4103 Jan 22 j 07:58	2° $\mathring{\text{C}}$ 01'08	15°09'51	max. Earth dist.	-4095 Feb 03 j 04:18	11° $\mathring{\text{C}}$ 11'05	46.63317 AU
max. Earth dist.	-4103 Jan 25 j 07:45	2° $\mathring{\text{C}}$ 05'45	45.24439 AU	retrograde	-4095 May 15 j 06:37	12° $\mathring{\text{C}}$ 45'24	
retrograde	-4103 May 06 j 01:25	3° $\mathring{\text{C}}$ 42'28		min. Earth dist.	-4095 Aug 04 j 11:49	11° $\mathring{\text{C}}$ 44'47	44.79436 AU
min. Earth dist.	-4103 Jul 26 j 01:17	2° $\mathring{\text{C}}$ 41'02	43.41257 AU	opposition	-4095 Aug 07 j 00:25	11° $\mathring{\text{C}}$ 41'45	-16°-54'-24
opposition	-4103 Jul 28 j 22:19	2° $\mathring{\text{C}}$ 37'31	-15°-55'-48	direct	-4095 Oct 26 j 14:56	10° $\mathring{\text{C}}$ 39'44	
direct	-4103 Oct 17 j 13:30	1° $\mathring{\text{C}}$ 34'20					
conjunction	-4102 Jan 23 j 18:02	3° $\mathring{\text{C}}$ 10'44	-15°-18'-25	conjunction	-4094 Feb 01 j 21:50	12° $\mathring{\text{C}}$ 13'18	-16°-14'-20
minimum elong	-4102 Jan 23 j 17:55	3° $\mathring{\text{C}}$ 10'44	15°18'36	minimum elong	-4094 Feb 01 j 21:48	12° $\mathring{\text{C}}$ 13'18	16°14'32
max. Earth dist.	-4102 Jan 26 j 16:44	3° $\mathring{\text{C}}$ 15'15	45.43202 AU	max. Earth dist.	-4094 Feb 04 j 13:26	12° $\mathring{\text{C}}$ 17'14	46.78781 AU
retrograde	-4102 May 07 j 13:38	4° $\mathring{\text{C}}$ 51'40		retrograde	-4094 May 16 j 12:14	13° $\mathring{\text{C}}$ 51'10	
min. Earth dist.	-4102 Jul 27 j 12:35	3° $\mathring{\text{C}}$ 50'21	43.60018 AU	min. Earth dist.	-4094 Aug 05 j 21:49	12° $\mathring{\text{C}}$ 50'35	44.94837 AU
opposition	-4102 Jul 30 j 08:21	3° $\mathring{\text{C}}$ 46'55	-16°-4'-33	opposition	-4094 Aug 08 j 08:50	12° $\mathring{\text{C}}$ 47'38	-16°-59'-58
direct	-4102 Oct 18 j 21:27	2° $\mathring{\text{C}}$ 43'56		direct	-4094 Oct 28 j 02:04	11° $\mathring{\text{C}}$ 45'43	
conjunction	-4101 Jan 25 j 04:09	4° $\mathring{\text{C}}$ 19'58	-15°-26'-45				
minimum elong	-4101 Jan 25 j 04:03	4° $\mathring{\text{C}}$ 19'58	15°26'57	conjunction	-4093 Feb 03 j 06:35	13° $\mathring{\text{C}}$ 18'57	-16°-19'-37
max. Earth dist.	-4101 Jan 28 j 03:02	4° $\mathring{\text{C}}$ 24'29	45.61665 AU	minimum elong	-4093 Feb 03 j 06:32	13° $\mathring{\text{C}}$ 18'57	16°19'49
retrograde	-4101 May 08 j 23:37	6° $\mathring{\text{C}}$ 00'31		max. Earth dist.	-4093 Feb 05 j 20:45	13° $\mathring{\text{C}}$ 22'47	46.93953 AU
min. Earth dist.	-4101 Jul 28 j 23:12	4° $\mathring{\text{C}}$ 59'21	43.78428 AU	retrograde	-4093 May 17 j 18:56	14° $\mathring{\text{C}}$ 56'27	
opposition	-4101 Jul 31 j 17:54	4° $\mathring{\text{C}}$ 55'59	-16°-12'-51	min. Earth dist.	-4093 Aug 07 j 05:33	13° $\mathring{\text{C}}$ 56'00	45.09958 AU
direct	-4101 Oct 20 j 06:45	3° $\mathring{\text{C}}$ 53'10		opposition	-4093 Aug 09 j 16:49	13° $\mathring{\text{C}}$ 53'03	-17°-5'-8
				direct	-4093 Oct 29 j 11:32	12° $\mathring{\text{C}}$ 51'13	
conjunction	-4092 Feb 04 j 15:03	14° $\mathring{\text{C}}$ 24'08	-16°-24'-32				
minimum elong	-4092 Feb 04 j 15:02	14° $\mathring{\text{C}}$ 24'08	16°24'43	conjunction	-4092 Feb 04 j 15:03	14° $\mathring{\text{C}}$ 24'08	-16°-24'-32
max. Earth dist.	-4092 Feb 07 j 04:33	14° $\mathring{\text{C}}$ 27'56	47.08854 AU	minimum elong	-4092 Feb 04 j 15:02	14° $\mathring{\text{C}}$ 24'08	16°24'43
				max. Earth dist.	-4092 Feb 07 j 04:33	14° $\mathring{\text{C}}$ 27'56	47.08854 AU



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 20

Attention, astronomical year style is used: The year -4092 in astronomical counting style is the year 4093 BCE in historical counting style.

retrograde	-4092 May 18 j 03:37	16° $\overline{30}$ 1'19		direct	-4084 Nov 07 j 07:08	22° $\overline{32}$ 6'57	
min. Earth dist.	-4092 Aug 07 j 15:13	15° $\overline{30}$ 0'55	45.24822 AU				
opposition	-4092 Aug 10 j 00:56	14° $\overline{35}$ 8'02	-17°-9'-54	conjunction	-4083 Feb 13 j 15:07	23° $\overline{35}$ 7'34	-16°-52'-56
direct	-4092 Oct 29 j 20:00	13° $\overline{35}$ 6'20		minimum elong	-4083 Feb 13 j 15:10	23° $\overline{35}$ 7'34	16°53'07
				max. Earth dist.	-4083 Feb 15 j 18:44	24° $\overline{30}$ 0'40	48.27285 AU
conjunction	-4091 Feb 04 j 23:22	15° $\overline{32}$ 8'57	-16°-29'-3	retrograde	-4083 May 28 j 00:54	25° $\overline{32}$ 3'09	
minimum elong	-4091 Feb 04 j 23:20	15° $\overline{32}$ 8'57	16°29'14	min. Earth dist.	-4083 Aug 17 j 18:02	24° $\overline{32}$ 2'28	46.41877 AU
max. Earth dist.	-4091 Feb 07 j 12:52	15° $\overline{32}$ 3'43	47.23515 AU	opposition	-4083 Aug 19 j 18:38	24° $\overline{30}$ 0'05	-17°-36'-50
retrograde	-4091 May 19 j 12:39	17° $\overline{30}$ 5'48		direct	-4083 Nov 08 j 14:53	23° $\overline{32}$ 9'24	
min. Earth dist.	-4091 Aug 08 j 23:22	16° $\overline{30}$ 5'31	45.39416 AU				
opposition	-4091 Aug 11 j 08:47	16° $\overline{30}$ 2'40	-17°-14'-17	conjunction	-4082 Feb 14 j 22:34	24° $\overline{35}$ 9'47	-16°-54'-31
direct	-4091 Oct 31 j 03:21	15° $\overline{30}$ 1'06		minimum elong	-4082 Feb 14 j 22:36	24° $\overline{35}$ 9'47	16°54'42
				max. Earth dist.	-4082 Feb 17 j 01:25	25° $\overline{30}$ 2'50	48.38273 AU
conjunction	-4090 Feb 06 j 07:35	16° $\overline{33}$ 3'26	-16°-33'-12	retrograde	-4082 May 29 j 06:26	26° $\overline{33}$ 4'06	
minimum elong	-4090 Feb 06 j 07:35	16° $\overline{33}$ 3'26	16°33'24	min. Earth dist.	-4082 Aug 19 j 02:41	25° $\overline{33}$ 4'25	46.52728 AU
max. Earth dist.	-4090 Feb 08 j 19:19	16° $\overline{33}$ 7'05	47.37904 AU	opposition	-4082 Aug 21 j 01:13	25° $\overline{32}$ 0'09	-17°-38'-11
retrograde	-4090 May 20 j 23:14	18° $\overline{30}$ 9'58		direct	-4082 Nov 09 j 23:45	24° $\overline{31}$ 3'32	
min. Earth dist.	-4090 Aug 10 j 07:41	17° $\overline{30}$ 9'48	45.53732 AU				
opposition	-4090 Aug 12 j 16:26	17° $\overline{30}$ 7'00	-17°-18'-17	conjunction	-4081 Feb 16 j 06:01	26° $\overline{30}$ 1'41	-16°-55'-45
direct	-4090 Nov 01 j 08:27	16° $\overline{30}$ 5'33		minimum elong	-4081 Feb 16 j 06:04	26° $\overline{30}$ 1'41	16°55'56
				max. Earth dist.	-4081 Feb 18 j 08:23	26° $\overline{30}$ 4'41	48.48945 AU
conjunction	-4089 Feb 07 j 15:52	17° $\overline{33}$ 7'38	-16°-37'00	retrograde	-4081 May 30 j 13:36	27° $\overline{33}$ 5'45	
minimum elong	-4089 Feb 07 j 15:51	17° $\overline{33}$ 7'38	16°37'11	min. Earth dist.	-4081 Aug 20 j 09:14	26° $\overline{33}$ 6'09	46.63261 AU
max. Earth dist.	-4089 Feb 10 j 03:40	17° $\overline{34}$ 1'17	47.51988 AU	opposition	-4081 Aug 22 j 07:37	26° $\overline{33}$ 3'53	-17°-39'-12
retrograde	-4089 May 22 j 05:33	19° $\overline{31}$ 3'53		direct	-4081 Nov 11 j 06:55	25° $\overline{33}$ 3'21	
min. Earth dist.	-4089 Aug 11 j 17:01	18° $\overline{31}$ 3'47	45.67698 AU				
opposition	-4089 Aug 14 j 00:00	18° $\overline{31}$ 1'04	-17°-21'-55	conjunction	-4080 Feb 17 j 13:01	27° $\overline{30}$ 3'18	-16°-56'-40
direct	-4089 Nov 02 j 17:22	17° $\overline{30}$ 9'46		minimum elong	-4080 Feb 17 j 13:03	27° $\overline{30}$ 3'18	16°56'51
				max. Earth dist.	-4080 Feb 19 j 13:34	27° $\overline{30}$ 6'11	48.59317 AU
conjunction	-4088 Feb 08 j 23:55	18° $\overline{34}$ 1'36	-16°-40'-26	retrograde	-4080 May 31 j 00:09	28° $\overline{33}$ 7'06	
minimum elong	-4088 Feb 08 j 23:55	18° $\overline{34}$ 1'36	16°40'39	min. Earth dist.	-4080 Aug 20 j 16:35	27° $\overline{33}$ 7'34	46.73517 AU
max. Earth dist.	-4088 Feb 11 j 10:02	18° $\overline{34}$ 5'08	47.65708 AU	opposition	-4080 Aug 22 j 14:02	27° $\overline{33}$ 5'21	-17°-39'-53
retrograde	-4088 May 22 j 11:26	20° $\overline{31}$ 7'34		direct	-4080 Nov 11 j 09:37	26° $\overline{33}$ 4'55	
min. Earth dist.	-4088 Aug 12 j 00:36	19° $\overline{31}$ 7'37	45.81267 AU				
opposition	-4088 Aug 14 j 07:22	19° $\overline{31}$ 4'55	-17°-25'-12	conjunction	-4079 Feb 17 j 20:11	28° $\overline{30}$ 4'39	-16°-57'-15
direct	-4088 Nov 03 j 02:40	18° $\overline{31}$ 3'45		minimum elong	-4079 Feb 17 j 20:16	28° $\overline{30}$ 4'40	16°57'26
				max. Earth dist.	-4079 Feb 19 j 20:58	28° $\overline{30}$ 7'33	48.69422 AU
conjunction	-4087 Feb 09 j 07:57	19° $\overline{34}$ 5'21	-16°-43'-33	retrograde	-4079 Jun 01 j 06:42	29° $\overline{33}$ 8'14	
minimum elong	-4087 Feb 09 j 07:57	19° $\overline{34}$ 5'21	16°43'44	min. Earth dist.	-4079 Aug 22 j 00:06	28° $\overline{33}$ 8'44	46.83485 AU
max. Earth dist.	-4087 Feb 11 j 16:55	19° $\overline{34}$ 8'48	47.78993 AU	opposition	-4079 Aug 23 j 20:17	28° $\overline{33}$ 6'36	-17°-40'-14
retrograde	-4087 May 23 j 19:44	21° $\overline{32}$ 1'03		direct	-4079 Nov 12 j 16:06	27° $\overline{33}$ 6'15	
min. Earth dist.	-4087 Aug 13 j 10:09	20° $\overline{32}$ 1'08	45.94376 AU				
opposition	-4087 Aug 15 j 14:47	20° $\overline{31}$ 8'33	-17°-28'-9	conjunction	-4078 Feb 19 j 03:12	29° $\overline{30}$ 5'48	-16°-57'-31
direct	-4087 Nov 04 j 10:35	19° $\overline{31}$ 7'30		minimum elong	-4078 Feb 19 j 03:15	29° $\overline{30}$ 5'48	16°57'42
				max. Earth dist.	-4078 Feb 21 j 02:14	29° $\overline{30}$ 8'35	48.79250 AU
conjunction	-4086 Feb 10 j 16:03	20° $\overline{34}$ 8'51	-16°-46'-22		-4078 Mar 31 j 21:07	0° $\approx$	
minimum elong	-4086 Feb 10 j 16:03	20° $\overline{34}$ 8'51	16°46'33	retrograde	-4078 Jun 02 j 11:30	0° $\approx$ 39'09	
max. Earth dist.	-4086 Feb 13 j 00:07	20° $\overline{35}$ 2'14	47.91806 AU		-4078 Aug 05 j 10:09	30° $\overline{R}$ $\overline{3}$	
retrograde	-4086 May 25 j 03:51	22° $\overline{32}$ 4'17		min. Earth dist.	-4078 Aug 23 j 06:23	29° $\overline{33}$ 9'46	46.93155 AU
min. Earth dist.	-4086 Aug 14 j 18:08	21° $\overline{32}$ 4'28	46.06969 AU	opposition	-4078 Aug 25 j 02:26	29° $\overline{33}$ 7'38	-17°-40'-16
opposition	-4086 Aug 16 j 21:58	21° $\overline{32}$ 1'55	-17°-30'-48	direct	-4078 Nov 13 j 23:28	28° $\overline{33}$ 7'23	
direct	-4086 Nov 05 j 17:35	20° $\overline{32}$ 0'59			-4077 Feb 15 j 15:21	0° $\approx$	
conjunction	-4085 Feb 11 j 23:55	21° $\overline{35}$ 2'05	-16°-48'-52	conjunction	-4077 Feb 20 j 10:12	0° $\approx$ 06'46	-16°-57'-29
minimum elong	-4085 Feb 11 j 23:56	21° $\overline{35}$ 2'05	16°49'02	minimum elong	-4077 Feb 20 j 10:17	0° $\approx$ 06'47	16°57'40
max. Earth dist.	-4085 Feb 14 j 05:37	21° $\overline{35}$ 5'19	48.04100 AU	max. Earth dist.	-4077 Feb 22 j 08:29	0° $\approx$ 09'30	48.88745 AU
retrograde	-4085 May 26 j 13:28	23° $\overline{32}$ 7'14		retrograde	-4077 Jun 03 j 16:06	1° $\approx$ 39'55	
min. Earth dist.	-4085 Aug 16 j 02:32	22° $\overline{32}$ 7'27	46.19060 AU	min. Earth dist.	-4077 Aug 24 j 14:31	0° $\approx$ 40'34	47.02470 AU
opposition	-4085 Aug 18 j 04:59	22° $\overline{32}$ 4'59	-17°-33'-7	opposition	-4077 Aug 26 j 08:28	0° $\approx$ 38'32	-17°-39'-58
direct	-4085 Nov 06 j 22:51	21° $\overline{32}$ 4'08			-4077 Oct 01 j 06:10	30° $\overline{R}$ $\overline{3}$	
				direct	-4077 Nov 15 j 07:58	29° $\overline{33}$ 8'23	
conjunction	-4084 Feb 13 j 07:42	22° $\overline{35}$ 5'00	-16°-51'-3		-4077 Dec 29 j 15:00	0° $\approx$	
minimum elong	-4084 Feb 13 j 07:43	22° $\overline{35}$ 5'00	16°51'15				
max. Earth dist.	-4084 Feb 15 j 13:13	22° $\overline{35}$ 8'13	48.15908 AU	conjunction	-4076 Feb 21 j 17:12	1° $\approx$ 07'36	-16°-57'-8
retrograde	-4084 May 26 j 19:06	24° $\overline{32}$ 9'52		minimum elong	-4076 Feb 21 j 17:16	1° $\approx$ 07'36	16°57'18
min. Earth dist.	-4084 Aug 16 j 11:12	23° $\overline{33}$ 0'05	46.30671 AU	max. Earth dist.	-4076 Feb 23 j 14:35	1° $\approx$ 10'16	48.97876 AU
opposition	-4084 Aug 18 j 11:55	23° $\overline{32}$ 7'42	-17°-35'-8	retrograde	-4076 Jun 03 j 22:21	2° $\approx$ 40'33	



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 21

Attention, astronomical year style is used: The year -4076 in astronomical counting style is the year 4077 BCE in historical counting style.

min. Earth dist.	-4076 Aug 24 j 20:53	1°≈41'17	47.11371 AU	conjunction	-4067 Mar 02 j 04:42	10°≈05'27	-16°-41'-57
opposition	-4076 Aug 26 j 14:24	1°≈39'17	-17°-39'-23	minimum elong	-4067 Mar 02 j 04:48	10°≈05'27	16°42'06
direct	-4076 Nov 15 j 15:02	0°≈39'13		max. Earth dist.	-4067 Mar 03 j 14:08	10°≈07'23	49.58901 AU
				retrograde	-4067 Jun 13 j 05:12	11°≈36'40	
conjunction	-4075 Feb 21 j 23:56	2°≈08'17	-16°-56'-31	min. Earth dist.	-4067 Sep 03 j 10:32	10°≈37'30	47.70195 AU
minimum elong	-4075 Feb 22 j 00:02	2°≈08'17	16°56'42	opposition	-4067 Sep 04 j 16:17	10°≈36'04	-17°-21'-47
max. Earth dist.	-4075 Feb 23 j 19:11	2°≈10'49	49.06556 AU	direct	-4067 Nov 24 j 19:37	9°≈36'27	
retrograde	-4075 Jun 05 j 07:22	3°≈41'02					
min. Earth dist.	-4075 Aug 26 j 04:40	2°≈41'47	47.19799 AU	conjunction	-4066 Mar 03 j 11:03	11°≈04'12	-16°-38'-53
opposition	-4075 Aug 27 j 20:24	2°≈39'52	-17°-38'-31	minimum elong	-4066 Mar 03 j 11:12	11°≈04'13	16°39'02
direct	-4075 Nov 16 j 19:11	1°≈39'54		max. Earth dist.	-4066 Mar 04 j 19:42	11°≈06'06	49.63823 AU
				retrograde	-4066 Jun 14 j 09:59	12°≈35'17	
conjunction	-4074 Feb 23 j 07:00	3°≈08'47	-16°-55'-38	opposition	-4066 Sep 05 j 21:14	11°≈34'47	-17°-18'-23
minimum elong	-4074 Feb 23 j 07:05	3°≈08'48	16°55'47	min. Earth dist.	-4066 Sep 04 j 15:40	11°≈36'12	47.74890 AU
max. Earth dist.	-4074 Feb 25 j 01:44	3°≈11'17	49.14733 AU	direct	-4066 Nov 26 j 02:23	10°≈35'14	
retrograde	-4074 Jun 06 j 14:23	4°≈41'20					
min. Earth dist.	-4074 Aug 27 j 12:11	3°≈42'06	47.27683 AU	conjunction	-4065 Mar 04 j 17:14	12°≈02'55	-16°-35'-31
opposition	-4074 Aug 29 j 02:11	3°≈40'16	-17°-37'-23	minimum elong	-4065 Mar 04 j 17:21	12°≈02'55	16°35'40
direct	-4074 Nov 18 j 00:40	2°≈40'21		max. Earth dist.	-4065 Mar 05 j 23:57	12°≈04'41	49.68408 AU
				retrograde	-4065 Jun 15 j 18:02	13°≈33'53	
conjunction	-4073 Feb 24 j 13:52	4°≈09'05	-16°-54'-29	min. Earth dist.	-4065 Sep 05 j 22:29	12°≈34'49	47.79241 AU
minimum elong	-4073 Feb 24 j 13:58	4°≈09'05	16°54'39	opposition	-4065 Sep 07 j 02:22	12°≈33'29	-17°-14'-43
max. Earth dist.	-4073 Feb 26 j 06:05	4°≈11'26	49.22375 AU	direct	-4065 Nov 27 j 05:48	11°≈34'00	
retrograde	-4073 Jun 07 j 21:11	5°≈41'24					
min. Earth dist.	-4073 Aug 28 j 18:36	4°≈42'13	47.35033 AU	conjunction	-4064 Mar 04 j 23:24	13°≈01'36	-16°-31'-54
opposition	-4073 Aug 30 j 07:55	4°≈40'25	-17°-36'00	minimum elong	-4064 Mar 04 j 23:33	13°≈01'36	16°32'04
direct	-4073 Nov 19 j 06:10	3°≈40'33		max. Earth dist.	-4064 Mar 06 j 05:58	13°≈03'21	49.72620 AU
				retrograde	-4064 Jun 16 j 01:08	14°≈32'28	
conjunction	-4072 Feb 25 j 20:29	5°≈09'07	-16°-53'-5	min. Earth dist.	-4064 Sep 06 j 04:50	13°≈33'25	47.83169 AU
minimum elong	-4072 Feb 25 j 20:35	5°≈09'07	16°53'14	opposition	-4064 Sep 07 j 07:24	13°≈32'09	-17°-10'-47
max. Earth dist.	-4072 Feb 27 j 11:37	5°≈11'24	49.29482 AU	direct	-4064 Nov 27 j 09:49	12°≈32'44	
retrograde	-4072 Jun 08 j 00:54	6°≈41'14					
min. Earth dist.	-4072 Aug 29 j 02:39	5°≈41'59	47.41867 AU	conjunction	-4063 Mar 06 j 05:36	14°≈00'16	-16°-28'-1
opposition	-4072 Aug 30 j 13:38	5°≈40'18	-17°-34'-20	minimum elong	-4063 Mar 06 j 05:44	14°≈00'17	16°28'10
direct	-4072 Nov 19 j 14:10	4°≈40'28		max. Earth dist.	-4063 Mar 07 j 09:44	14°≈01'53	49.76397 AU
					-4063 Apr 22 j 10:46	15°≈	
conjunction	-4071 Feb 26 j 03:11	6°≈08'52	-16°-51'-25	retrograde	-4063 Jun 17 j 08:36	15°≈31'01	
minimum elong	-4071 Feb 26 j 03:17	6°≈08'52	16°51'35		-4063 Aug 12 j 20:21	15°≈	
max. Earth dist.	-4071 Feb 27 j 17:19	6°≈11'05	49.36121 AU	min. Earth dist.	-4063 Sep 07 j 10:33	14°≈32'01	47.86635 AU
retrograde	-4071 Jun 09 j 05:18	7°≈40'47		opposition	-4063 Sep 08 j 12:18	14°≈30'47	-17°-6'-35
min. Earth dist.	-4071 Aug 30 j 08:30	6°≈41'34	47.48247 AU	direct	-4063 Nov 28 j 13:22	13°≈31'25	
opposition	-4071 Aug 31 j 19:02	6°≈39'54	-17°-32'-24				
direct	-4071 Nov 20 j 21:58	5°≈40'06		conjunction	-4062 Mar 07 j 11:55	14°≈58'54	-16°-23'-54
				minimum elong	-4062 Mar 07 j 12:04	14°≈58'55	16°24'03
conjunction	-4070 Feb 27 j 09:40	7°≈08'20	-16°-49'-28		-4062 Mar 08 j 07:03	15°≈	
minimum elong	-4070 Feb 27 j 09:47	7°≈08'21	16°49'38	max. Earth dist.	-4062 Mar 08 j 14:53	15°≈00'27	49.79665 AU
max. Earth dist.	-4070 Feb 28 j 21:41	7°≈10'26	49.42330 AU	retrograde	-4062 Jun 18 j 12:30	16°≈29'32	
retrograde	-4070 Jun 10 j 14:04	8°≈40'03		opposition	-4062 Sep 09 j 17:22	15°≈29'22	-17°-2'-9
min. Earth dist.	-4070 Aug 31 j 15:27	7°≈40'50	47.54235 AU	min. Earth dist.	-4062 Sep 08 j 18:07	15°≈30'29	47.89566 AU
opposition	-4070 Sep 02 j 00:31	7°≈39'15	-17°-30'-11		-4062 Oct 06 j 12:11	15°≈	
direct	-4070 Nov 22 j 01:30	6°≈39'29		direct	-4062 Nov 29 j 19:55	14°≈30'02	
					-4061 Jan 22 j 08:36	15°≈	
conjunction	-4069 Feb 28 j 16:14	8°≈07'34	-16°-47'-15				
minimum elong	-4069 Feb 28 j 16:20	8°≈07'34	16°47'25	conjunction	-4061 Mar 08 j 18:12	15°≈57'26	-16°-19'-33
max. Earth dist.	-4069 Mar 02 j 04:10	8°≈09'39	49.48170 AU	minimum elong	-4061 Mar 08 j 18:21	15°≈57'26	16°19'41
retrograde	-4069 Jun 11 j 20:13	9°≈39'06		max. Earth dist.	-4061 Mar 09 j 19:44	15°≈58'54	49.82406 AU
min. Earth dist.	-4069 Sep 01 j 21:57	8°≈39'53	47.59859 AU	retrograde	-4061 Jun 19 j 15:05	17°≈27'56	
opposition	-4069 Sep 03 j 05:44	8°≈38'21	-17°-27'-41	opposition	-4061 Sep 10 j 22:08	16°≈27'50	-16°-57'-29
direct	-4069 Nov 23 j 06:42	7°≈38'37		min. Earth dist.	-4061 Sep 09 j 23:25	16°≈28'55	47.91954 AU
				direct	-4061 Dec 01 j 04:16	15°≈28'30	
conjunction	-4068 Feb 29 j 22:31	9°≈06'35	-16°-44'-45				
minimum elong	-4068 Feb 29 j 22:39	9°≈06'36	16°44'54	conjunction	-4060 Mar 09 j 00:14	16°≈55'49	-16°-14'-57
max. Earth dist.	-4068 Mar 02 j 08:37	9°≈08'34	49.53689 AU	minimum elong	-4060 Mar 09 j 00:23	16°≈55'49	16°15'07
retrograde	-4068 Jun 12 j 01:49	10°≈37'56		max. Earth dist.	-4060 Mar 09 j 23:21	16°≈55'08	49.84615 AU
min. Earth dist.	-4068 Sep 02 j 03:22	9°≈38'47	47.65181 AU	retrograde	-4060 Jun 19 j 22:24	18°≈26'12	
opposition	-4068 Sep 03 j 10:59	9°≈37'16	-17°-24'-53	min. Earth dist.	-4060 Sep 10 j 06:14	17°≈27'07	47.93842 AU
direct	-4068 Nov 23 j 11:42	8°≈37'36		opposition	-4060 Sep 11 j 03:01	17°≈26'07	-16°-52'-34



Attention, astronomical year style is used: The year -4060 in astronomical counting style is the year 4061 BCE in historical counting style.

direct	-4060 Dec 01 j 08:36	16°26'48		minimum elong	-4051 Mar 18 j 05:29	25°34'43	15°22'16
				max. Earth dist.	-4051 Mar 18 j 18:25	25°35'27	49.87725 AU
conjunction	-4059 Mar 10 j 06:16	17°54'01	-16°-10'-8	retrograde	-4051 Jun 28 j 20:49	27°04'19	
minimum elong	-4059 Mar 10 j 06:27	17°54'02	16°10'16	opposition	-4051 Sep 19 j 19:56	26°04'33	-15°-56'-25
max. Earth dist.	-4059 Mar 11 j 05:07	17°55'19	49.86349 AU	min. Earth dist.	-4051 Sep 19 j 08:43	26°05'05	47.94428 AU
retrograde	-4059 Jun 21 j 04:50	19°24'16		direct	-4051 Dec 10 j 05:33	25°05'18	
opposition	-4059 Sep 12 j 07:46	18°24'12	-16°-47'-24				
min. Earth dist.	-4059 Sep 11 j 12:16	18°25'08	47.95260 AU	conjunction	-4050 Mar 19 j 11:16	26°32'15	-15°-15'00
direct	-4059 Dec 02 j 12:42	17°24'53		minimum elong	-4050 Mar 19 j 11:27	26°32'16	15°15'06
				max. Earth dist.	-4050 Mar 19 j 21:52	26°32'52	49.86216 AU
conjunction	-4058 Mar 11 j 12:15	18°52'01	-16°-5'-3	retrograde	-4050 Jun 30 j 03:04	28°01'52	
minimum elong	-4058 Mar 11 j 12:24	18°52'01	16°05'12	opposition	-4050 Sep 21 j 00:26	27°02'08	-15°-48'-53
max. Earth dist.	-4058 Mar 12 j 08:53	18°53'12	49.87656 AU	min. Earth dist.	-4050 Sep 20 j 15:23	27°02'34	47.92548 AU
retrograde	-4058 Jun 22 j 11:27	20°22'08		direct	-4050 Dec 11 j 10:09	26°02'53	
opposition	-4058 Sep 13 j 12:16	19°22'05	-16°-41'-59				
min. Earth dist.	-4058 Sep 12 j 17:27	19°22'59	47.96291 AU	conjunction	-4049 Mar 20 j 17:24	27°29'51	-15°-7'-39
direct	-4058 Dec 03 j 16:07	18°22'45		minimum elong	-4049 Mar 20 j 17:36	27°29'52	15°07'46
				max. Earth dist.	-4049 Mar 21 j 03:25	27°30'26	49.84183 AU
conjunction	-4057 Mar 12 j 18:13	19°49'49	-15°-59'-43	retrograde	-4049 Jul 01 j 09:38	28°59'26	
minimum elong	-4057 Mar 12 j 18:24	19°49'49	15°59'51	opposition	-4049 Sep 22 j 04:58	27°59'44	-15°-41'-8
max. Earth dist.	-4057 Mar 13 j 14:04	19°50'57	49.88588 AU	min. Earth dist.	-4049 Sep 21 j 21:20	28°00'06	47.90122 AU
retrograde	-4057 Jun 23 j 14:14	21°19'49		direct	-4049 Dec 12 j 13:49	27°00'29	
opposition	-4057 Sep 14 j 16:57	20°19'47	-16°-36'-17				
min. Earth dist.	-4057 Sep 13 j 23:59	20°20'35	47.96969 AU	conjunction	-4048 Mar 20 j 23:09	28°27'27	-15°00'-4
direct	-4057 Dec 04 j 23:18	19°20'26		minimum elong	-4048 Mar 20 j 23:21	28°27'28	15°00'10
				max. Earth dist.	-4048 Mar 21 j 06:40	28°27'53	49.81625 AU
conjunction	-4056 Mar 12 j 23:58	20°47'26	-15°-54'-7	retrograde	-4048 Jul 01 j 17:13	29°57'00	
minimum elong	-4056 Mar 13 j 00:08	20°47'27	15°54'15	opposition	-4048 Sep 22 j 09:28	28°57'18	-15°-33'-9
max. Earth dist.	-4056 Mar 13 j 19:02	20°48'31	49.89211 AU	min. Earth dist.	-4048 Sep 22 j 02:45	28°57'37	47.87190 AU
retrograde	-4056 Jun 23 j 16:46	22°17'20		direct	-4048 Dec 12 j 16:20	27°58'01	
opposition	-4056 Sep 14 j 21:29	21°17'19	-16°-30'-19				
min. Earth dist.	-4056 Sep 14 j 04:31	21°18'08	47.97345 AU	conjunction	-4047 Mar 22 j 05:08	29°25'01	-14°-52'-15
direct	-4056 Dec 05 j 06:32	20°17'58		minimum elong	-4047 Mar 22 j 05:20	29°25'02	14°52'22
				max. Earth dist.	-4047 Mar 22 j 11:31	29°25'23	49.78568 AU
conjunction	-4055 Mar 14 j 05:45	21°44'56	-15°-48'-15		-4047 Apr 17 j 13:35	0°	
minimum elong	-4055 Mar 14 j 05:56	21°44'56	15°48'23	retrograde	-4047 Jul 02 j 20:26	0°54'31	
max. Earth dist.	-4055 Mar 14 j 23:03	21°45'55	49.89540 AU		-4047 Sep 19 j 00:59	30°	
retrograde	-4055 Jun 24 j 23:08	23°14'45		opposition	-4047 Sep 23 j 13:53	29°54'49	-15°-24'-56
min. Earth dist.	-4055 Sep 15 j 10:39	22°15'30	47.97443 AU	min. Earth dist.	-4047 Sep 23 j 09:23	29°55'02	47.83782 AU
opposition	-4055 Sep 16 j 02:01	22°14'46	-16°-24'-4	direct	-4047 Dec 13 j 23:06	28°55'31	
direct	-4055 Dec 06 j 10:47	21°15'26			-4046 Mar 06 j 17:47	0°	
conjunction	-4054 Mar 15 j 11:44	22°42'21	-15°-42'-6	conjunction	-4046 Mar 23 j 11:08	0°22'32	-14°-44'-12
minimum elong	-4054 Mar 15 j 11:54	22°42'21	15°42'14	minimum elong	-4046 Mar 23 j 11:21	0°22'33	14°44'19
max. Earth dist.	-4054 Mar 16 j 04:55	22°43'19	49.89594 AU	max. Earth dist.	-4046 Mar 23 j 16:24	0°22'50	49.75080 AU
retrograde	-4054 Jun 26 j 05:07	24°12'06		retrograde	-4046 Jul 03 j 22:49	1°52'00	
opposition	-4054 Sep 17 j 06:33	23°12'10	-16°-17'-33	opposition	-4046 Sep 24 j 18:14	0°52'18	-15°-16'-27
min. Earth dist.	-4054 Sep 16 j 16:03	23°12'52	47.97236 AU	min. Earth dist.	-4046 Sep 24 j 14:01	0°52'30	47.79960 AU
direct	-4054 Dec 07 j 15:22	22°12'51			-4046 Nov 19 j 15:47	30°	
				direct	-4046 Dec 15 j 06:37	29°52'57	
conjunction	-4053 Mar 16 j 17:30	23°39'45	-15°-35'-42		-4045 Jan 09 j 15:50	0°	
minimum elong	-4053 Mar 16 j 17:42	23°39'46	15°35'50				
max. Earth dist.	-4053 Mar 17 j 08:39	23°40'37	49.89343 AU	conjunction	-4045 Mar 24 j 16:55	1°20'00	-14°-35'-54
retrograde	-4053 Jun 27 j 12:50	25°09'27		minimum elong	-4045 Mar 24 j 17:07	1°20'00	14°36'01
opposition	-4053 Sep 18 j 10:57	24°09'34	-16°-10'-45	max. Earth dist.	-4045 Mar 24 j 20:07	1°20'11	49.71193 AU
min. Earth dist.	-4053 Sep 17 j 21:04	24°10'14	47.96710 AU	retrograde	-4045 Jul 05 j 04:27	2°49'27	
direct	-4053 Dec 08 j 17:33	23°10'17		opposition	-4045 Sep 25 j 22:38	1°49'45	-15°-7'-44
				min. Earth dist.	-4045 Sep 25 j 20:15	1°49'51	47.75779 AU
conjunction	-4052 Mar 16 j 23:23	24°37'12	-15°-29'-2	direct	-4045 Dec 16 j 11:22	0°50'22	
minimum elong	-4052 Mar 16 j 23:34	24°37'13	15°29'10				
max. Earth dist.	-4052 Mar 17 j 13:44	24°38'01	49.88737 AU	conjunction	-4044 Mar 24 j 22:51	2°17'26	-14°-27'-21
retrograde	-4052 Jun 27 j 17:53	26°06'51		minimum elong	-4044 Mar 24 j 23:04	2°17'27	14°27'28
opposition	-4052 Sep 18 j 15:29	25°07'02	-16°-3'-42	max. Earth dist.	-4044 Mar 25 j 01:57	2°17'37	49.66978 AU
min. Earth dist.	-4052 Sep 18 j 03:48	25°07'35	47.95797 AU	retrograde	-4044 Jul 05 j 09:53	3°46'54	
direct	-4052 Dec 08 j 22:25	24°07'46		opposition	-4044 Sep 26 j 03:00	2°47'11	-14°-58'-44
				min. Earth dist.	-4044 Sep 26 j 01:18	2°47'16	47.71276 AU
conjunction	-4051 Mar 18 j 05:17	25°34'42	-15°-22'-8	direct	-4044 Dec 16 j 16:10	1°47'47	



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 23

Attention, astronomical year style is used: The year -4043 in astronomical counting style is the year 4044 BCE in historical counting style.

conjunction	-4043 Mar 26 j 04:34	3° <del>14</del> '54	-14°-18'-33	retrograde	-4035 Jul 14 j 11:57	12° <del>18</del> '27'42	
minimum elong	-4043 Mar 26 j 04:45	3° <del>14</del> '54	14°18'39	opposition	-4035 Oct 04 j 19:42	11° <del>18</del> '27'54	-13°-26'-16
max. Earth dist.	-4043 Mar 26 j 05:38	3° <del>14</del> '57	49.62467 AU	min. Earth dist.	-4035 Oct 05 j 06:08	11° <del>18</del> '27'24	47.13521 AU
retrograde	-4043 Jul 06 j 18:25	4° <del>14</del> '42'21		direct	-4035 Dec 25 j 11:34	10° <del>18</del> '28'06	
opposition	-4043 Sep 27 j 07:23	3° <del>14</del> '44'39	-14°-49'-28				
min. Earth dist.	-4043 Sep 27 j 06:19	3° <del>14</del> '44'42	47.66485 AU	conjunction	-4034 Apr 04 j 11:59	11° <del>18</del> '56'03	-12°-48'-15
direct	-4043 Dec 17 j 17:29	2° <del>14</del> '45'13		minimum elong	-4034 Apr 04 j 12:12	11° <del>18</del> '56'03	12°48'20
				max. Earth dist.	-4034 Apr 04 j 00:33	11° <del>18</del> '55'23	49.04024 AU
conjunction	-4042 Mar 27 j 10:33	4° <del>14</del> '12'24	-14°-9'-29	retrograde	-4034 Jul 15 j 16:23	13° <del>18</del> '25'53	
minimum elong	-4042 Mar 27 j 10:46	4° <del>14</del> '12'25	14°09'35	opposition	-4034 Oct 06 j 00:14	12° <del>18</del> '26'01	-13°-14'-48
max. Earth dist.	-4042 Mar 27 j 10:58	4° <del>14</del> '12'26	49.57654 AU	min. Earth dist.	-4034 Oct 06 j 11:36	12° <del>18</del> '25'29	47.04725 AU
retrograde	-4042 Jul 08 j 00:35	5° <del>14</del> '41'52		direct	-4034 Dec 26 j 17:41	11° <del>18</del> '26'08	
opposition	-4042 Sep 28 j 11:49	4° <del>14</del> '42'10	-14°-39'-56				
min. Earth dist.	-4042 Sep 28 j 12:37	4° <del>14</del> '42'08	47.61384 AU	conjunction	-4033 Apr 05 j 18:14	12° <del>18</del> '54'11	-12°-37'-2
direct	-4042 Dec 18 j 21:37	3° <del>14</del> '42'44		minimum elong	-4033 Apr 05 j 18:27	12° <del>18</del> '54'12	12°37'07
				max. Earth dist.	-4033 Apr 05 j 04:37	12° <del>18</del> '53'25	48.95194 AU
conjunction	-4041 Mar 28 j 16:32	5° <del>14</del> '10'00	-14°00'-9	retrograde	-4033 Jul 17 j 00:41	14° <del>18</del> '24'05	
minimum elong	-4041 Mar 28 j 16:44	5° <del>14</del> '10'01	14°00'15	opposition	-4033 Oct 07 j 04:53	13° <del>18</del> '24'10	-13°-3'-3
max. Earth dist.	-4041 Mar 28 j 15:55	5° <del>14</del> '09'58	49.52545 AU	min. Earth dist.	-4033 Oct 07 j 17:07	13° <del>18</del> '23'35	46.95570 AU
retrograde	-4041 Jul 09 j 03:13	6° <del>18</del> '39'30		direct	-4033 Dec 27 j 20:01	12° <del>18</del> '24'12	
opposition	-4041 Sep 29 j 16:12	5° <del>18</del> '39'49	-14°-30'-8	max. Earth dist.	-4032 Apr 05 j 10:08	13° <del>18</del> '51'34	48.86015 AU
min. Earth dist.	-4041 Sep 29 j 17:07	5° <del>18</del> '39'47	47.55959 AU				
direct	-4041 Dec 20 j 04:28	4° <del>18</del> '40'22		conjunction	-4032 Apr 06 j 00:25	13° <del>18</del> '52'23	-12°-25'-35
				minimum elong	-4032 Apr 06 j 00:38	13° <del>18</del> '52'23	12°25'39
conjunction	-4040 Mar 28 j 22:19	6° <del>18</del> '07'43	-13°-50'-35	retrograde	-4032 Jul 17 j 07:15	15° <del>18</del> '22'22	
minimum elong	-4040 Mar 28 j 22:32	6° <del>18</del> '07'44	13°50'41	opposition	-4032 Oct 07 j 09:42	14° <del>18</del> '22'23	-12°-51'-2
max. Earth dist.	-4040 Mar 28 j 19:41	6° <del>18</del> '07'34	49.47074 AU	min. Earth dist.	-4032 Oct 07 j 23:40	14° <del>18</del> '21'43	46.86087 AU
retrograde	-4040 Jul 09 j 07:39	7° <del>18</del> '37'17		direct	-4032 Dec 28 j 00:34	13° <del>18</del> '22'20	
opposition	-4040 Sep 29 j 20:46	6° <del>18</del> '37'36	-14°-20'-5				
min. Earth dist.	-4040 Sep 29 j 23:43	6° <del>18</del> '37'28	47.50151 AU	conjunction	-4031 Apr 07 j 06:49	14° <del>18</del> '50'40	-12°-13'-51
direct	-4040 Dec 20 j 10:26	5° <del>18</del> '38'08		minimum elong	-4031 Apr 07 j 07:02	14° <del>18</del> '50'41	12°13'55
				max. Earth dist.	-4031 Apr 06 j 15:34	14° <del>18</del> '49'47	48.76547 AU
conjunction	-4039 Mar 30 j 04:33	7° <del>18</del> '05'35	-13°-40'-46	retrograde	-4031 Jul 18 j 11:33	16° <del>18</del> '20'45	
minimum elong	-4039 Mar 30 j 04:45	7° <del>18</del> '05'36	13°40'51	opposition	-4031 Oct 08 j 14:17	15° <del>18</del> '20'44	-12°-38'-45
max. Earth dist.	-4039 Mar 30 j 01:30	7° <del>18</del> '05'25	49.41186 AU	min. Earth dist.	-4031 Oct 09 j 04:13	15° <del>18</del> '20'03	46.76321 AU
retrograde	-4039 Jul 10 j 13:41	8° <del>18</del> '35'12		direct	-4031 Dec 29 j 06:47	14° <del>18</del> '20'36	
opposition	-4039 Oct 01 j 01:12	7° <del>18</del> '35'32	-14°-9'-47				
min. Earth dist.	-4039 Oct 01 j 05:24	7° <del>18</del> '35'20	47.43877 AU	conjunction	-4030 Apr 08 j 13:15	15° <del>18</del> '49'06	-12°-1'-51
direct	-4039 Dec 21 j 15:05	6° <del>18</del> '36'01		minimum elong	-4030 Apr 08 j 13:27	15° <del>18</del> '49'07	12°01'56
				max. Earth dist.	-4030 Apr 07 j 20:05	15° <del>18</del> '48'07	48.66792 AU
conjunction	-4038 Mar 31 j 10:46	8° <del>18</del> '03'34	-13°-30'-43	retrograde	-4030 Jul 19 j 16:07	17° <del>18</del> '19'19	
minimum elong	-4038 Mar 31 j 10:59	8° <del>18</del> '03'35	13°30'49	opposition	-4030 Oct 09 j 19:13	16° <del>18</del> '19'15	-12°-26'-11
max. Earth dist.	-4038 Mar 31 j 05:02	8° <del>18</del> '03'15	49.34809 AU	min. Earth dist.	-4030 Oct 10 j 10:58	16° <del>18</del> '18'30	46.66280 AU
retrograde	-4038 Jul 11 j 22:17	9° <del>18</del> '33'14		direct	-4030 Dec 30 j 13:05	15° <del>18</del> '19'04	
opposition	-4038 Oct 02 j 05:47	8° <del>18</del> '33'34	-13°-59'-16				
min. Earth dist.	-4038 Oct 02 j 11:12	8° <del>18</del> '33'18	47.37091 AU	conjunction	-4029 Apr 09 j 19:46	16° <del>18</del> '47'45	-11°-49'-36
direct	-4038 Dec 22 j 17:01	7° <del>18</del> '34'00		minimum elong	-4029 Apr 09 j 19:59	16° <del>18</del> '47'46	11°49'40
				max. Earth dist.	-4029 Apr 09 j 02:36	16° <del>18</del> '46'46	48.56759 AU
conjunction	-4037 Apr 01 j 17:03	9° <del>18</del> '01'39	-13°-20'-26	retrograde	-4029 Jul 20 j 21:38	18° <del>18</del> '18'07	
minimum elong	-4037 Apr 01 j 17:16	9° <del>18</del> '01'40	13°20'31	opposition	-4029 Oct 11 j 00:03	17° <del>18</del> '18'02	-12°-13'-21
max. Earth dist.	-4037 Apr 01 j 09:58	9° <del>18</del> '01'15	49.27883 AU	min. Earth dist.	-4029 Oct 11 j 16:27	17° <del>18</del> '17'14	46.55932 AU
retrograde	-4037 Jul 13 j 03:33	10° <del>18</del> '31'22		direct	-4029 Dec 31 j 18:37	16° <del>18</del> '17'47	
opposition	-4037 Oct 03 j 10:28	9° <del>18</del> '31'39	-13°-48'-30	max. Earth dist.	-4028 Apr 09 j 06:50	17° <del>18</del> '45'33	48.46413 AU
min. Earth dist.	-4037 Oct 03 j 18:09	9° <del>18</del> '31'17	47.29746 AU				
direct	-4037 Dec 23 j 22:27	8° <del>18</del> '32'02		conjunction	-4028 Apr 10 j 02:15	17° <del>18</del> '46'40	-11°-37'-5
				minimum elong	-4028 Apr 10 j 02:27	17° <del>18</del> '46'41	11°37'09
conjunction	-4036 Apr 01 j 23:20	9° <del>18</del> '59'47	-13°-9'-56	retrograde	-4028 Jul 21 j 07:04	19° <del>18</del> '17'11	
minimum elong	-4036 Apr 01 j 23:33	9° <del>18</del> '59'48	13°10'02	opposition	-4028 Oct 11 j 04:54	18° <del>18</del> '17'05	-12°00'-14
max. Earth dist.	-4036 Apr 01 j 14:48	9° <del>18</del> '59'18	49.20428 AU	min. Earth dist.	-4028 Oct 11 j 22:19	18° <del>18</del> '16'15	46.45254 AU
retrograde	-4036 Jul 13 j 07:07	11° <del>18</del> '29'31		direct	-4028 Dec 31 j 19:57	17° <del>18</del> '16'47	
opposition	-4036 Oct 03 j 15:00	10° <del>18</del> '29'46	-13°-37'-30				
min. Earth dist.	-4036 Oct 03 j 23:16	10° <del>18</del> '29'23	47.21877 AU	conjunction	-4027 Apr 11 j 09:01	18° <del>18</del> '45'54	-11°-24'-18
direct	-4036 Dec 24 j 05:38	9° <del>18</del> '30'04		minimum elong	-4027 Apr 11 j 09:14	18° <del>18</del> '45'54	11°24'22
				max. Earth dist.	-4027 Apr 10 j 12:41	18° <del>18</del> '44'43	48.35680 AU
conjunction	-4035 Apr 03 j 05:33	10° <del>18</del> '57'55	-12°-59'-13	retrograde	-4027 Jul 22 j 14:04	20° <del>18</del> '16'35	
minimum elong	-4035 Apr 03 j 05:46	10° <del>18</del> '57'56	12°59'17	opposition	-4027 Oct 12 j 10:01	19° <del>18</del> '16'27	-11°-46'-52
max. Earth dist.	-4035 Apr 02 j 18:36	10° <del>18</del> '57'17	49.12456 AU	min. Earth dist.	-4027 Oct 13 j 05:31	19° <del>18</del> '15'30	46.34147 AU



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:36, page 24

Attention, astronomical year style is used: The year -4026 in astronomical counting style is the year 4027 BCE in historical counting style.

direct	-4026 Jan 02 j 00:34	18° <del>✕</del> 16'05		conjunction	-4018 Apr 21 j 01:40	27° <del>✕</del> 48'25	-9°-18'-8
				minimum elong	-4018 Apr 21 j 01:52	27° <del>✕</del> 48'26	9°18'09
conjunction	-4026 Apr 12 j 15:56	19° <del>✕</del> 45'25	-11°-11'-17	retrograde	-4018 Jul 31 j 22:18	29° <del>✕</del> 20'42	
minimum elong	-4026 Apr 12 j 16:09	19° <del>✕</del> 45'26	11°11'20	opposition	-4018 Oct 21 j 10:46	28° <del>✕</del> 19'45	-9°-34'-46
max. Earth dist.	-4026 Apr 11 j 18:08	19° <del>✕</del> 44'09	48.24502 AU	min. Earth dist.	-4018 Oct 22 j 16:32	28° <del>✕</del> 18'17	45.14366 AU
retrograde	-4026 Jul 23 j 19:14	21° <del>✕</del> 16'15		direct	-4017 Jan 11 j 07:34	27° <del>✕</del> 18'14	
opposition	-4026 Oct 13 j 15:00	20° <del>✕</del> 16'05	-11°-33'-14	max. Earth dist.	-4017 Apr 20 j 23:22	28° <del>✕</del> 47'43	47.04412 AU
min. Earth dist.	-4026 Oct 14 j 11:05	20° <del>✕</del> 15'07	46.22563 AU				
direct	-4025 Jan 03 j 08:01	19° <del>✕</del> 15'38		conjunction	-4017 Apr 22 j 09:24	28° <del>✕</del> 49'44	-9°-2'-46
				minimum elong	-4017 Apr 22 j 09:35	28° <del>✕</del> 49'44	9°02'48
conjunction	-4025 Apr 13 j 22:53	20° <del>✕</del> 45'12	-10°-58'-2		-4017 Jun 17 j 15:05	0° <del>Υ</del>	
minimum elong	-4025 Apr 13 j 23:06	20° <del>✕</del> 45'12	10°58'05	retrograde	-4017 Aug 02 j 06:25	0° <del>Υ</del> 22'16	
max. Earth dist.	-4025 Apr 12 j 22:35	20° <del>✕</del> 43'47	48.12815 AU		-4017 Sep 17 j 03:55	30° <del>℞</del>	
retrograde	-4025 Jul 25 j 00:12	22° <del>✕</del> 16'12		opposition	-4017 Oct 22 j 16:48	29° <del>✕</del> 21'13	-9°-18'-40
opposition	-4025 Oct 14 j 20:21	21° <del>✕</del> 15'58	-11°-19'-22	min. Earth dist.	-4017 Oct 24 j 00:03	29° <del>✕</del> 19'41	44.99470 AU
min. Earth dist.	-4025 Oct 15 j 18:43	21° <del>✕</del> 14'52	46.10470 AU	direct	-4016 Jan 12 j 12:26	28° <del>✕</del> 19'36	
direct	-4024 Jan 04 j 15:01	20° <del>✕</del> 15'25		max. Earth dist.	-4016 Apr 21 j 05:57	29° <del>✕</del> 49'20	46.89531 AU
max. Earth dist.	-4024 Apr 13 j 05:01	21° <del>✕</del> 43'44	48.00625 AU				
				conjunction	-4016 Apr 22 j 17:03	29° <del>✕</del> 51'24	-8°-47'-9
conjunction	-4024 Apr 14 j 05:53	21° <del>✕</del> 45'11	-10°-44'-32	minimum elong	-4016 Apr 22 j 17:15	29° <del>✕</del> 51'25	8°47'10
minimum elong	-4024 Apr 14 j 06:06	21° <del>✕</del> 45'11	10°44'34		-4016 Apr 28 j 18:51	0° <del>Υ</del>	
retrograde	-4024 Jul 25 j 04:49	23° <del>✕</del> 16'21		retrograde	-4016 Aug 02 j 14:47	1° <del>Υ</del> 24'12	
opposition	-4024 Oct 15 j 01:39	22° <del>✕</del> 16'02	-11°-5'-14	opposition	-4016 Oct 22 j 22:48	0° <del>Υ</del> 23'05	-9°-2'-17
min. Earth dist.	-4024 Oct 16 j 00:54	22° <del>✕</del> 14'54	45.97867 AU	min. Earth dist.	-4016 Oct 24 j 06:21	0° <del>Υ</del> 21'31	44.84273 AU
direct	-4023 Jan 04 j 22:17	21° <del>✕</del> 15'22			-4016 Nov 11 j 20:36	30° <del>℞</del>	
max. Earth dist.	-4023 Apr 14 j 09:34	22° <del>✕</del> 43'44	47.87948 AU	direct	-4015 Jan 12 j 18:42	29° <del>✕</del> 21'20	
					-4015 Mar 14 j 21:52	0° <del>Υ</del>	
conjunction	-4023 Apr 15 j 12:58	22° <del>✕</del> 45'20	-10°-30'-47	max. Earth dist.	-4015 Apr 22 j 11:55	0° <del>Υ</del> 51'18	46.74293 AU
minimum elong	-4023 Apr 15 j 13:10	22° <del>✕</del> 45'20	10°30'50				
retrograde	-4023 Jul 26 j 13:31	24° <del>✕</del> 16'40		conjunction	-4015 Apr 24 j 01:06	0° <del>Υ</del> 53'30	-8°-31'-14
opposition	-4023 Oct 16 j 06:53	23° <del>✕</del> 16'15	-10°-50'-51	minimum elong	-4015 Apr 24 j 01:17	0° <del>Υ</del> 53'30	8°31'15
min. Earth dist.	-4023 Oct 17 j 07:32	23° <del>✕</del> 15'03	45.84810 AU	retrograde	-4015 Aug 03 j 22:09	2° <del>Υ</del> 26'35	
direct	-4022 Jan 06 j 01:38	22° <del>✕</del> 15'27		opposition	-4015 Oct 24 j 04:59	1° <del>Υ</del> 25'23	-8°-45'-38
				min. Earth dist.	-4015 Oct 25 j 14:50	1° <del>Υ</del> 23'42	44.68696 AU
conjunction	-4022 Apr 16 j 20:18	23° <del>✕</del> 45'38	-10°-16'-47	direct	-4014 Jan 14 j 01:51	0° <del>Υ</del> 23'30	
minimum elong	-4022 Apr 16 j 20:31	23° <del>✕</del> 45'39	10°16'49	max. Earth dist.	-4014 Apr 23 j 19:44	1° <del>Υ</del> 53'47	46.58642 AU
max. Earth dist.	-4022 Apr 15 j 15:57	23° <del>✕</del> 43'59	47.74823 AU				
retrograde	-4022 Jul 27 j 21:53	25° <del>✕</del> 17'08		conjunction	-4014 Apr 25 j 09:29	1° <del>Υ</del> 56'02	-8°-15'-4
opposition	-4022 Oct 17 j 12:23	24° <del>✕</del> 16'36	-10°-36'-12	minimum elong	-4014 Apr 25 j 09:40	1° <del>Υ</del> 56'02	8°15'06
min. Earth dist.	-4022 Oct 18 j 14:51	24° <del>✕</del> 15'19	45.71331 AU	retrograde	-4014 Aug 05 j 03:53	3° <del>Υ</del> 29'25	
direct	-4021 Jan 07 j 05:58	23° <del>✕</del> 15'39		opposition	-4014 Oct 25 j 11:24	2° <del>Υ</del> 28'07	-8°-28'-41
max. Earth dist.	-4021 Apr 16 j 21:53	24° <del>✕</del> 44'21	47.61322 AU	min. Earth dist.	-4014 Oct 26 j 21:59	2° <del>Υ</del> 26'24	44.52665 AU
				direct	-4013 Jan 15 j 10:23	1° <del>Υ</del> 26'07	
conjunction	-4021 Apr 18 j 03:26	24° <del>✕</del> 46'04	-10°-2'-31	max. Earth dist.	-4013 Apr 25 j 01:20	2° <del>Υ</del> 56'35	46.42515 AU
minimum elong	-4021 Apr 18 j 03:38	24° <del>✕</del> 46'05	10°02'34				
retrograde	-4021 Jul 29 j 05:09	26° <del>✕</del> 17'44		conjunction	-4013 Apr 26 j 17:42	2° <del>Υ</del> 58'59	-7°-58'-38
opposition	-4021 Oct 19 j 17:46	25° <del>✕</del> 17'06	-10°-21'-16	minimum elong	-4013 Apr 26 j 17:53	2° <del>Υ</del> 59'00	7°58'39
min. Earth dist.	-4021 Oct 19 j 20:22	25° <del>✕</del> 15'48	45.57505 AU	retrograde	-4013 Aug 06 j 12:44	4° <del>Υ</del> 32'41	
direct	-4020 Jan 08 j 11:36	24° <del>✕</del> 15'59		opposition	-4013 Oct 26 j 17:59	3° <del>Υ</del> 31'16	-8°-11'-28
max. Earth dist.	-4020 Apr 17 j 03:20	25° <del>✕</del> 44'49	47.47488 AU	min. Earth dist.	-4013 Oct 28 j 06:10	3° <del>Υ</del> 29'28	44.36156 AU
				direct	-4012 Jan 16 j 15:37	2° <del>Υ</del> 29'07	
conjunction	-4020 Apr 18 j 10:42	25° <del>✕</del> 46'39	-9°-48'00	max. Earth dist.	-4012 Apr 25 j 08:58	3° <del>Υ</del> 59'53	46.25892 AU
minimum elong	-4020 Apr 18 j 10:55	25° <del>✕</del> 46'40	9°48'02				
retrograde	-4020 Jul 29 j 09:37	27° <del>✕</del> 18'30		conjunction	-4012 Apr 27 j 02:20	4° <del>Υ</del> 02'21	-7°-41'-57
opposition	-4020 Oct 18 j 23:21	26° <del>✕</del> 17'45	-10°-6'-3	minimum elong	-4012 Apr 27 j 02:30	4° <del>Υ</del> 02'22	7°41'58
min. Earth dist.	-4020 Oct 20 j 03:51	26° <del>✕</del> 16'21	45.43385 AU	retrograde	-4012 Aug 06 j 21:55	5° <del>Υ</del> 36'22	
direct	-4019 Jan 08 j 19:17	25° <del>✕</del> 16'30		opposition	-4012 Oct 27 j 00:41	4° <del>Υ</del> 34'49	-7°-53'-58
max. Earth dist.	-4019 Apr 18 j 10:45	26° <del>✕</del> 45'35	47.33383 AU	min. Earth dist.	-4012 Oct 28 j 14:42	4° <del>Υ</del> 32'55	44.19152 AU
				direct	-4011 Jan 16 j 21:07	3° <del>Υ</del> 32'30	
conjunction	-4019 Apr 19 j 18:11	26° <del>✕</del> 47'25	-9°-33'-12	max. Earth dist.	-4011 Apr 26 j 15:53	5° <del>Υ</del> 03'31	46.08804 AU
minimum elong	-4019 Apr 19 j 18:22	26° <del>✕</del> 47'26	9°33'14				
retrograde	-4019 Jul 30 j 13:30	28° <del>✕</del> 19'28		conjunction	-4011 Apr 28 j 10:59	5° <del>Υ</del> 06'06	-7°-24'-59
opposition	-4019 Oct 20 j 05:02	27° <del>✕</del> 18'37	-9°-50'-33	minimum elong	-4011 Apr 28 j 11:10	5° <del>Υ</del> 06'07	7°24'59
min. Earth dist.	-4019 Oct 21 j 09:54	27° <del>✕</del> 17'12	45.28994 AU	retrograde	-4011 Aug 08 j 08:32	6° <del>Υ</del> 40'25	
direct	-4018 Jan 10 j 03:54	26° <del>✕</del> 17'14		opposition	-4011 Oct 28 j 07:25	5° <del>Υ</del> 38'44	-7°-36'-12
max. Earth dist.	-4018 Apr 19 j 16:05	27° <del>✕</del> 46'27	47.19024 AU	min. Earth dist.	-4011 Oct 29 j 21:57	5° <del>Υ</del> 36'48	44.01695 AU
				direct	-4010 Jan 18 j 02:47	4° <del>Υ</del> 36'13	



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:37, page 25

Attention, astronomical year style is used: The year -4010 in astronomical counting style is the year 4011 BCE in historical counting style.

max. Earth dist.	-4010 Apr 27 j 22:44	6°V07'30	45.91260 AU	minimum elong	-4002 May 09 j 00:51	14°V58'53	4°39'41
				retrograde	-4002 Aug 18 j 14:09	16°V36'41	
conjunction	-4010 Apr 29 j 19:50	6°V10'13	-7°-7'-45	opposition	-4002 Nov 07 j 04:31	15°V33'35	-4°-42'-39
minimum elong	-4010 Apr 29 j 20:00	6°V10'14	7°07'46	min. Earth dist.	-4002 Nov 09 j 05:30	15°V31'04	42.30613 AU
retrograde	-4010 Aug 09 j 15:34	7°V44'50		direct	-4001 Jan 28 j 04:28	14°V29'18	
opposition	-4010 Oct 29 j 14:24	6°V43'00	-7°-18'-8	max. Earth dist.	-4001 May 08 j 03:29	16°V04'00	44.19829 AU
min. Earth dist.	-4010 Oct 31 j 07:13	6°V40'58	43.83824 AU				
direct	-4009 Jan 19 j 11:13	5°V40'18		conjunction	-4001 May 10 j 11:23	16°V07'30	-4°-19'-55
max. Earth dist.	-4009 Apr 29 j 07:25	7°V11'57	45.73341 AU	minimum elong	-4001 May 10 j 11:30	16°V07'30	4°19'53
				retrograde	-4001 Aug 20 j 02:48	17°V45'45	
conjunction	-4009 May 01 j 04:51	7°V14'42	-6°-50'-15	opposition	-4001 Nov 08 j 13:16	16°V42'29	-4°-21'-50
minimum elong	-4009 May 01 j 05:01	7°V14'42	6°50'15	min. Earth dist.	-4001 Nov 10 j 14:59	16°V39'54	42.09981 AU
retrograde	-4009 Aug 10 j 20:39	8°V49'38		direct	-4000 Jan 29 j 10:27	15°V37'56	
opposition	-4009 Oct 30 j 21:28	7°V47'39	-6°-59'-46	max. Earth dist.	-4000 May 08 j 12:42	17°V13'04	43.99058 AU
min. Earth dist.	-4009 Nov 01 j 14:35	7°V45'34	43.65603 AU				
direct	-4008 Jan 20 j 21:50	6°V44'45		conjunction	-4000 May 10 j 22:16	17°V16'41	-3°-59'-50
max. Earth dist.	-4008 Apr 29 j 14:01	8°V16'38	45.55095 AU	minimum elong	-4000 May 10 j 22:23	17°V16'41	3°59'48
				retrograde	-4000 Aug 20 j 14:15	18°V55'25	
conjunction	-4008 May 01 j 13:43	8°V19'32	-6°-32'-28	opposition	-4000 Nov 08 j 22:24	17°V51'56	-4°00'-43
minimum elong	-4008 May 01 j 13:53	8°V19'33	6°32'28	min. Earth dist.	-4000 Nov 11 j 02:24	17°V49'14	41.88906 AU
retrograde	-4008 Aug 11 j 05:31	9°V54'50		direct	-3999 Jan 29 j 18:48	16°V47'08	
opposition	-4008 Oct 31 j 04:45	8°V52'41	-6°-41'-6	max. Earth dist.	-3999 May 09 j 23:10	18°V22'44	43.77865 AU
min. Earth dist.	-4008 Nov 01 j 23:09	8°V50'32	43.47095 AU				
direct	-4007 Jan 21 j 04:13	7°V49'35		conjunction	-3999 May 12 j 09:33	18°V26'25	-3°-39'-28
max. Earth dist.	-4007 Apr 30 j 23:09	9°V21'52	45.36569 AU	minimum elong	-3999 May 12 j 09:39	18°V26'26	3°39'27
				retrograde	-3999 Aug 22 j 00:22	20°V05'37	
conjunction	-4007 May 02 j 23:08	9°V24'47	-6°-14'-24	opposition	-3999 Nov 10 j 07:31	19°V01'54	-3°-39'-18
minimum elong	-4007 May 02 j 23:17	9°V24'48	6°14'23	min. Earth dist.	-3999 Nov 12 j 11:55	18°V59'10	41.67423 AU
retrograde	-4007 Aug 12 j 14:07	11°V00'27		direct	-3998 Jan 31 j 06:54	17°V56'50	
opposition	-4007 Nov 01 j 12:11	9°V58'09	-6°-22'-8	max. Earth dist.	-3998 May 11 j 08:04	19°V32'50	43.56275 AU
min. Earth dist.	-4007 Nov 03 j 07:46	9°V55'56	43.28324 AU				
direct	-4006 Jan 22 j 11:02	8°V54'50		conjunction	-3998 May 13 j 20:58	19°V36'42	-3°-18'-50
max. Earth dist.	-4006 May 02 j 07:17	10°V27'29	45.17812 AU	minimum elong	-3998 May 13 j 21:03	19°V36'42	3°18'47
				retrograde	-3998 Aug 23 j 10:47	21°V16'22	
conjunction	-4006 May 04 j 08:35	10°V30'29	-5°-56'-3	opposition	-3998 Nov 11 j 17:03	20°V12'25	-3°-17'-34
minimum elong	-4006 May 04 j 08:44	10°V30'30	5°56'02	min. Earth dist.	-3998 Nov 13 j 23:18	20°V09'35	41.45590 AU
retrograde	-4006 Aug 14 j 01:40	12°V06'32		direct	-3997 Feb 01 j 17:22	19°V07'04	
opposition	-4006 Nov 02 j 19:48	11°V04'05	-6°-2'-52	max. Earth dist.	-3997 May 12 j 19:33	20°V43'37	43.34350 AU
min. Earth dist.	-4006 Nov 04 j 15:35	11°V01'51	43.09338 AU				
direct	-4005 Jan 23 j 17:03	10°V00'34		conjunction	-3997 May 15 j 08:32	20°V47'30	-2°-57'-54
max. Earth dist.	-4005 May 03 j 15:25	11°V33'36	44.98819 AU	minimum elong	-3997 May 15 j 08:37	20°V47'30	2°57'52
				retrograde	-3997 Aug 24 j 19:48	22°V27'42	
conjunction	-4005 May 05 j 18:08	11°V36'42	-5°-37'-24	opposition	-3997 Nov 13 j 02:48	21°V23'30	-2°-55'-31
minimum elong	-4005 May 05 j 18:17	11°V36'43	5°37'23	min. Earth dist.	-3997 Nov 15 j 09:48	21°V20'36	41.23454 AU
retrograde	-4005 Aug 15 j 12:34	13°V13'10		direct	-3996 Feb 03 j 04:32	20°V17'51	
opposition	-4005 Nov 04 j 03:45	12°V10'32	-5°-43'-16	max. Earth dist.	-3996 May 13 j 05:35	21°V54'51	43.12164 AU
min. Earth dist.	-4005 Nov 06 j 01:20	12°V08'13	42.90118 AU				
direct	-4004 Jan 25 j 00:54	11°V06'51		conjunction	-3996 May 15 j 20:16	21°V58'52	-2°-36'-41
max. Earth dist.	-4004 May 04 j 01:07	12°V40'21	44.79591 AU	minimum elong	-3996 May 15 j 20:21	21°V58'53	2°36'38
				retrograde	-3996 Aug 25 j 08:08	23°V39'36	
conjunction	-4004 May 06 j 04:04	12°V43'29	-5°-18'-27	opposition	-3996 Nov 13 j 12:36	22°V35'10	-2°-33'-10
minimum elong	-4004 May 06 j 04:11	12°V43'30	5°18'27	min. Earth dist.	-3996 Nov 15 j 20:15	22°V32'13	41.01101 AU
retrograde	-4004 Aug 15 j 20:33	14°V20'22		direct	-3995 Feb 03 j 12:41	21°V29'13	
opposition	-4004 Nov 04 j 11:39	13°V17'36	-5°-23'-22	max. Earth dist.	-3995 May 14 j 16:52	23°V06'47	42.89758 AU
min. Earth dist.	-4004 Nov 06 j 09:27	13°V15'15	42.70635 AU				
direct	-4003 Jan 25 j 11:22	12°V13'43		conjunction	-3995 May 17 j 08:27	23°V10'52	-2°-15'-10
max. Earth dist.	-4003 May 05 j 08:54	13°V47'34	44.60059 AU	minimum elong	-3995 May 17 j 08:31	23°V10'53	2°15'08
				retrograde	-3995 Aug 26 j 21:18	24°V52'10	
conjunction	-4003 May 07 j 14:11	13°V50'52	-4°-59'-13	opposition	-3995 Nov 14 j 22:59	23°V47'28	-2°-10'-30
minimum elong	-4003 May 07 j 14:19	13°V50'53	4°59'13	min. Earth dist.	-3995 Nov 17 j 08:09	23°V44'26	40.78562 AU
retrograde	-4003 Aug 17 j 05:31	15°V28'12		direct	-3994 Feb 04 j 21:38	22°V41'15	
opposition	-4003 Nov 05 j 19:57	14°V25'17	-5°-3'-9	max. Earth dist.	-3994 May 16 j 04:49	24°V19'25	42.67200 AU
min. Earth dist.	-4003 Nov 07 j 19:35	14°V22'50	42.50827 AU				
direct	-4002 Jan 26 j 19:35	13°V21'12		conjunction	-3994 May 18 j 20:48	24°V23'34	-1°-53'-23
max. Earth dist.	-4002 May 06 j 18:53	14°V55'32	44.40149 AU	minimum elong	-3994 May 18 j 20:51	24°V23'34	1°53'19
				retrograde	-3994 Aug 28 j 10:43	26°V05'26	
conjunction	-4002 May 09 j 00:44	14°V58'53	-4°-39'-43	opposition	-3994 Nov 16 j 09:27	25°V00'31	-1°-47'-31



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:37, page 26

Attention, astronomical year style is used: The year -3994 in astronomical counting style is the year 3995 BCE in historical counting style.

min. Earth dist.	-3994 Nov 18 j 18:18	24° $\Upsilon$ 57'30	40.55889 AU	minimum elong	-3986 May 29 j 12:44	4° $\text{B}$ 37'40	1°11'06
direct	-3993 Feb 06 j 08:26	23° $\Upsilon$ 54'01		retrograde	-3986 Sep 08 j 01:21	6° $\text{B}$ 25'06	
max. Earth dist.	-3993 May 17 j 15:44	25° $\Upsilon$ 32'45	42.44503 AU	opposition	-3986 Nov 26 j 10:31	5° $\text{B}$ 18'11	1°27'14
				min. Earth dist.	-3986 Nov 29 j 04:13	5° $\text{B}$ 14'33	38.66775 AU
conjunction	-3993 May 20 j 09:26	25° $\Upsilon$ 37'02	-1°-31'-18	direct	-3985 Feb 16 j 09:28	4° $\text{B}$ 09'14	
minimum elong	-3993 May 20 j 09:28	25° $\Upsilon$ 37'03	1°31'15	max. Earth dist.	-3985 May 28 j 02:33	5° $\text{B}$ 53'34	40.54367 AU
retrograde	-3993 Aug 29 j 22:49	27° $\Upsilon$ 19'32					
opposition	-3993 Nov 17 j 20:22	26° $\Upsilon$ 14'24	-1°-24'-14	conjunction	-3985 May 31 j 04:33	5° $\text{B}$ 58'39	1°35'16
min. Earth dist.	-3993 Nov 20 j 06:51	26° $\Upsilon$ 11'16	40.33097 AU	minimum elong	-3985 May 31 j 04:30	5° $\text{B}$ 58'39	1°35'21
direct	-3992 Feb 07 j 19:25	25° $\Upsilon$ 07'38		retrograde	-3985 Sep 09 j 14:26	7° $\text{B}$ 46'51	
max. Earth dist.	-3992 May 18 j 04:59	26° $\Upsilon$ 47'05	42.21670 AU	opposition	-3985 Nov 28 j 00:23	6° $\text{B}$ 39'36	1°52'54
				min. Earth dist.	-3985 Nov 30 j 19:05	6° $\text{B}$ 35'54	38.41961 AU
conjunction	-3992 May 20 j 22:27	26° $\Upsilon$ 51'23	-1°-8'-56	direct	-3984 Feb 17 j 23:29	5° $\text{B}$ 30'17	
minimum elong	-3992 May 20 j 22:29	26° $\Upsilon$ 51'23	1°08'52	max. Earth dist.	-3984 May 28 j 17:14	7° $\text{B}$ 15'21	40.29443 AU
retrograde	-3992 Aug 30 j 09:06	28° $\Upsilon$ 34'32					
opposition	-3992 Nov 18 j 07:34	27° $\Upsilon$ 29'11	-1°00'-38	conjunction	-3984 May 31 j 20:28	7° $\text{B}$ 20'34	1°59'45
min. Earth dist.	-3992 Nov 20 j 18:26	27° $\Upsilon$ 26'01	40.10143 AU	minimum elong	-3984 May 31 j 20:24	7° $\text{B}$ 20'34	1°59'51
direct	-3991 Feb 08 j 08:48	26° $\Upsilon$ 22'10		retrograde	-3984 Sep 10 j 07:12	9° $\text{B}$ 09'34	
max. Earth dist.	-3991 May 19 j 16:20	28° $\Upsilon$ 02'12	41.98649 AU	opposition	-3984 Nov 28 j 14:33	8° $\text{B}$ 01'59	2°18'49
				min. Earth dist.	-3984 Dec 01 j 09:20	7° $\text{B}$ 58'14	38.17027 AU
conjunction	-3991 May 22 j 11:50	28° $\Upsilon$ 06'40	0°-46'-17	direct	-3983 Feb 18 j 11:22	6° $\text{B}$ 52'16	
minimum elong	-3991 May 22 j 11:51	28° $\Upsilon$ 06'40	0°46'14	max. Earth dist.	-3983 May 30 j 08:50	8° $\text{B}$ 38'08	40.04395 AU
retrograde	-3991 Aug 31 j 23:08	29° $\Upsilon$ 50'30					
opposition	-3991 Nov 19 j 18:59	28° $\Upsilon$ 44'56	0°-36'-44	conjunction	-3983 Jun 02 j 13:00	8° $\text{B}$ 43'27	2°24'28
min. Earth dist.	-3991 Nov 22 j 06:52	28° $\Upsilon$ 41'42	39.86989 AU	minimum elong	-3983 Jun 02 j 12:56	8° $\text{B}$ 43'27	2°24'35
direct	-3990 Feb 09 j 18:08	27° $\Upsilon$ 37'39		retrograde	-3983 Sep 12 j 00:21	10° $\text{B}$ 33'16	
max. Earth dist.	-3990 May 21 j 05:37	29° $\Upsilon$ 18'24	41.75369 AU	opposition	-3983 Nov 30 j 05:17	9° $\text{B}$ 25'20	2°45'00
				min. Earth dist.	-3983 Dec 03 j 01:35	9° $\text{B}$ 21'30	37.92020 AU
conjunction	-3990 May 24 j 01:47	29° $\Upsilon$ 22'56	0°-23'-23	direct	-3982 Feb 20 j 00:59	8° $\text{B}$ 15'15	
minimum elong	-3990 May 24 j 01:48	29° $\Upsilon$ 22'56	0°23'18	max. Earth dist.	-3982 Jun 01 j 01:58	10° $\text{B}$ 02'01	39.79310 AU
	-3990 Jun 16 j 18:00	0° $\text{B}$					
retrograde	-3990 Sep 02 j 12:47	1° $\text{B}$ 07'29		conjunction	-3982 Jun 04 j 05:56	10° $\text{B}$ 07'21	2°49'25
opposition	-3990 Nov 21 j 07:04	0° $\text{B}$ 01'41	0°-12'-31	minimum elong	-3982 Jun 04 j 05:50	10° $\text{B}$ 07'21	2°49'31
	-3990 Nov 22 j 14:06	30° $\text{R}$ $\Upsilon$		retrograde	-3982 Sep 13 j 18:48	11° $\text{B}$ 58'00	
min. Earth dist.	-3990 Nov 23 j 20:35	29° $\Upsilon$ 58'21	39.63556 AU	opposition	-3982 Dec 01 j 20:28	10° $\text{B}$ 49'45	3°11'25
direct	-3989 Feb 11 j 04:21	28° $\Upsilon$ 54'07		min. Earth dist.	-3982 Dec 04 j 16:16	10° $\text{B}$ 45'56	37.67003 AU
	-3989 Apr 30 j 00:03	0° $\text{B}$		direct	-3981 Feb 21 j 17:16	9° $\text{B}$ 39'17	
max. Earth dist.	-3989 May 22 j 18:34	0° $\text{B}$ 35'33	41.51796 AU	max. Earth dist.	-3981 Jun 02 j 17:32	11° $\text{B}$ 26'53	39.54212 AU
conjunction	-3989 May 25 j 15:49	0° $\text{B}$ 40'11	0°00'-10	conjunction	-3981 Jun 05 j 23:05	11° $\text{B}$ 32'23	3°14'34
minimum elong	-3989 May 25 j 15:49	0° $\text{B}$ 40'11	0°00'06	minimum elong	-3981 Jun 05 j 22:58	11° $\text{B}$ 32'23	3°14'41
behind sun begin	-3989 May 25 j 09:34	0° $\text{B}$ 39'48		retrograde	-3981 Sep 15 j 13:37	13° $\text{B}$ 23'55	
behind sun end	-3989 May 25 j 22:04	0° $\text{B}$ 40'35		opposition	-3981 Dec 03 j 12:09	12° $\text{B}$ 15'21	3°38'05
asc. node	-3989 May 28 j 10:11	0° $\text{B}$ 44'38		min. Earth dist.	-3981 Dec 06 j 09:12	12° $\text{B}$ 11'26	37.42002 AU
retrograde	-3989 Sep 04 j 05:07	2° $\text{B}$ 25'27		direct	-3980 Feb 23 j 08:33	11° $\text{B}$ 04'30	
opposition	-3989 Nov 22 j 19:21	1° $\text{B}$ 19'24	0°11'58	max. Earth dist.	-3980 Jun 03 j 11:59	12° $\text{B}$ 53'07	39.29114 AU
min. Earth dist.	-3989 Nov 25 j 09:11	1° $\text{B}$ 16'02	39.39819 AU				
direct	-3988 Feb 12 j 16:09	0° $\text{B}$ 11'31		conjunction	-3980 Jun 06 j 17:00	12° $\text{B}$ 58'38	3°39'55
max. Earth dist.	-3988 May 23 j 07:06	1° $\text{B}$ 53'37	41.27884 AU	minimum elong	-3980 Jun 06 j 16:53	12° $\text{B}$ 58'37	3°40'01
				retrograde	-3980 Sep 16 j 05:31	14° $\text{B}$ 51'05	
conjunction	-3988 May 26 j 06:27	1° $\text{B}$ 58'25	0°23'19	opposition	-3980 Dec 04 j 04:12	13° $\text{B}$ 42'13	4°04'58
minimum elong	-3988 May 26 j 06:26	1° $\text{B}$ 58'25	0°23'23	min. Earth dist.	-3980 Dec 07 j 01:27	13° $\text{B}$ 38'15	37.16989 AU
retrograde	-3988 Sep 04 j 22:02	3° $\text{B}$ 44'24		direct	-3979 Feb 24 j 01:40	12° $\text{B}$ 31'01	
opposition	-3988 Nov 23 j 08:01	2° $\text{B}$ 38'04	0°36'46	max. Earth dist.	-3979 Jun 05 j 04:50	14° $\text{B}$ 20'31	39.03984 AU
min. Earth dist.	-3988 Nov 26 j 00:01	2° $\text{B}$ 34'34	39.15758 AU				
direct	-3987 Feb 13 j 04:28	1° $\text{B}$ 29'51		conjunction	-3979 Jun 08 j 11:21	14° $\text{B}$ 26'11	4°05'28
max. Earth dist.	-3987 May 24 j 21:53	3° $\text{B}$ 12'43	41.03656 AU	minimum elong	-3979 Jun 08 j 11:12	14° $\text{B}$ 26'11	4°05'35
					-3979 Jun 28 j 06:20	15° $\text{B}$	
conjunction	-3987 May 27 j 21:32	3° $\text{B}$ 17'35	0°47'02	retrograde	-3979 Sep 17 j 23:57	16° $\text{B}$ 19'36	
minimum elong	-3987 May 27 j 21:30	3° $\text{B}$ 17'35	0°47'07	opposition	-3979 Dec 05 j 20:50	15° $\text{B}$ 10'26	4°32'04
retrograde	-3987 Sep 06 j 11:22	5° $\text{B}$ 04'17		min. Earth dist.	-3979 Dec 08 j 18:43	15° $\text{B}$ 06'25	36.91938 AU
opposition	-3987 Nov 24 j 21:06	3° $\text{B}$ 57'40	1°01'52		-3979 Dec 13 j 10:52	15° $\text{R}$ $\text{B}$	
min. Earth dist.	-3987 Nov 27 j 13:21	3° $\text{B}$ 54'08	38.91390 AU	direct	-3978 Feb 25 j 16:54	13° $\text{B}$ 58'52	
direct	-3986 Feb 14 j 19:50	2° $\text{B}$ 49'06			-3978 May 08 j 08:13	15° $\text{B}$	
max. Earth dist.	-3986 May 26 j 10:56	4° $\text{B}$ 32'37	40.79131 AU	max. Earth dist.	-3978 Jun 06 j 23:26	15° $\text{B}$ 49'24	38.78753 AU
conjunction	-3986 May 29 j 12:46	4° $\text{B}$ 37'40	1°11'01	conjunction	-3978 Jun 10 j 06:18	15° $\text{B}$ 55'08	4°31'11



# Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:37, page 27

Attention, astronomical year style is used: The year -3978 in astronomical counting style is the year 3979 BCE in historical counting style.

minimum elong	-3978 Jun 10 j 06:09	15° <b>8</b> 55'07	4°31'18			-3970 Nov 28 j 09:06	30° <b>R</b> 8	
retrograde	-3978 Sep 19 j 18:24	17° <b>8</b> 49'33		opposition		-3970 Dec 20 j 05:40	29° <b>8</b> 29'09	8°42'36
opposition	-3978 Dec 07 j 14:13	16° <b>8</b> 40'03	4°59'21	min. Earth dist.		-3970 Dec 23 j 08:23	29° <b>8</b> 24'37	34.62270 AU
min. Earth dist.	-3978 Dec 10 j 13:31	16° <b>8</b> 35'56	36.66772 AU	direct		-3969 Mar 11 j 18:19	28° <b>8</b> 13'40	
direct	-3977 Feb 27 j 07:55	15° <b>8</b> 28'07				-3969 Jun 14 j 09:16	0° <b>II</b>	
max. Earth dist.	-3977 Jun 08 j 18:08	17° <b>8</b> 19'39	38.53395 AU	max. Earth dist.		-3969 Jun 21 j 22:00	0° <b>II</b> 14'11	36.47366 AU
conjunction	-3977 Jun 12 j 01:46	17° <b>8</b> 25'30	4°57'04	conjunction		-3969 Jun 25 j 10:12	0° <b>II</b> 20'50	8°27'36
minimum elong	-3977 Jun 12 j 01:35	17° <b>8</b> 25'29	4°57'12	minimum elong		-3969 Jun 25 j 09:54	0° <b>II</b> 20'48	8°27'44
retrograde	-3977 Sep 21 j 15:26	19° <b>8</b> 20'57		retrograde		-3969 Oct 05 j 05:14	2° <b>II</b> 25'11	
opposition	-3977 Dec 09 j 07:57	18° <b>8</b> 11'07	5°26'50	opposition		-3969 Dec 22 j 04:30	1° <b>II</b> 12'13	9°10'39
min. Earth dist.	-3977 Dec 12 j 07:11	18° <b>8</b> 06'59	36.41473 AU	min. Earth dist.		-3969 Dec 25 j 08:06	1° <b>II</b> 07'36	34.37118 AU
direct	-3976 Feb 29 j 00:18	16° <b>8</b> 58'47				-3968 Feb 25 j 08:01	30° <b>R</b> 8	
max. Earth dist.	-3976 Jun 09 j 12:34	18° <b>8</b> 51'18	38.27861 AU	direct		-3968 Mar 12 j 15:37	29° <b>8</b> 56'16	
conjunction	-3976 Jun 12 j 21:50	18° <b>8</b> 57'19	5°23'06	max. Earth dist.		-3968 Mar 28 j 23:55	0° <b>II</b>	
minimum elong	-3976 Jun 12 j 21:39	18° <b>8</b> 57'18	5°23'13			-3968 Jun 23 j 00:03	1° <b>II</b> 58'12	36.22092 AU
retrograde	-3976 Sep 22 j 13:18	20° <b>8</b> 53'48		conjunction		-3968 Jun 26 j 11:01	2° <b>II</b> 04'49	8°53'53
opposition	-3976 Dec 10 j 02:29	19° <b>8</b> 43'36	5°54'29	minimum elong		-3968 Jun 26 j 10:43	2° <b>II</b> 04'47	8°54'01
min. Earth dist.	-3976 Dec 13 j 03:32	19° <b>8</b> 39'20	36.16008 AU	retrograde		-3968 Oct 06 j 06:49	4° <b>II</b> 10'25	
direct	-3975 Mar 01 j 18:07	18° <b>8</b> 30'52		opposition		-3968 Dec 23 j 04:05	2° <b>II</b> 57'04	9°38'37
max. Earth dist.	-3975 Jun 11 j 09:27	20° <b>8</b> 24'30	38.02162 AU	min. Earth dist.		-3968 Dec 26 j 06:55	2° <b>II</b> 52'28	34.12207 AU
conjunction	-3975 Jun 14 j 18:35	20° <b>8</b> 30'33	5°49'16	direct		-3967 Mar 14 j 16:07	1° <b>II</b> 40'41	
minimum elong	-3975 Jun 14 j 18:23	20° <b>8</b> 30'32	5°49'24	max. Earth dist.		-3967 Jun 25 j 00:32	3° <b>II</b> 43'52	35.97047 AU
retrograde	-3975 Sep 24 j 10:56	22° <b>8</b> 28'05		conjunction		-3967 Jun 28 j 12:29	3° <b>II</b> 50'37	9°20'03
opposition	-3975 Dec 11 j 21:27	21° <b>8</b> 17'32	6°22'18	minimum elong		-3967 Jun 28 j 12:09	3° <b>II</b> 50'36	9°20'12
min. Earth dist.	-3975 Dec 14 j 22:31	21° <b>8</b> 13'14	35.90395 AU	retrograde		-3967 Oct 08 j 10:00	5° <b>II</b> 57'31	
direct	-3974 Mar 03 j 15:06	20° <b>8</b> 04'21		opposition		-3967 Dec 25 j 04:21	4° <b>II</b> 43'47	10°06'27
max. Earth dist.	-3974 Jun 13 j 04:46	21° <b>8</b> 58'59	37.76327 AU	min. Earth dist.		-3967 Dec 28 j 07:40	4° <b>II</b> 39'07	33.87538 AU
conjunction	-3974 Jun 16 j 15:47	22° <b>8</b> 05'14	6°15'33	direct		-3966 Mar 16 j 15:01	3° <b>II</b> 26'58	
minimum elong	-3974 Jun 16 j 15:34	22° <b>8</b> 05'13	6°15'40	max. Earth dist.		-3966 Jun 27 j 03:54	5° <b>II</b> 31'36	35.72202 AU
retrograde	-3974 Sep 26 j 09:01	24° <b>8</b> 03'50		conjunction		-3966 Jun 30 j 14:50	5° <b>II</b> 38'21	9°46'03
opposition	-3974 Dec 13 j 17:06	22° <b>8</b> 52'54	6°50'14	minimum elong		-3966 Jun 30 j 14:30	5° <b>II</b> 38'19	9°46'12
min. Earth dist.	-3974 Dec 16 j 19:19	22° <b>8</b> 48'30	35.64695 AU	retrograde		-3966 Oct 10 j 11:43	7° <b>II</b> 46'33	
direct	-3973 Mar 05 j 09:48	21° <b>8</b> 39'16		opposition		-3966 Dec 27 j 05:37	6° <b>II</b> 32'26	10°34'07
max. Earth dist.	-3973 Jun 15 j 02:49	23° <b>8</b> 35'04	37.50409 AU	min. Earth dist.		-3966 Dec 30 j 09:07	6° <b>II</b> 27'43	33.63057 AU
conjunction	-3973 Jun 18 j 13:29	23° <b>8</b> 41'21	6°41'55	direct		-3965 Mar 18 j 16:28	5° <b>II</b> 15'11	
minimum elong	-3973 Jun 18 j 13:15	23° <b>8</b> 41'20	6°42'03	max. Earth dist.		-3965 Jun 29 j 06:04	7° <b>II</b> 21'08	35.47535 AU
retrograde	-3973 Sep 28 j 04:23	25° <b>8</b> 41'02		conjunction		-3965 Jul 02 j 17:38	7° <b>II</b> 28'00	10°11'51
opposition	-3973 Dec 15 j 13:21	24° <b>8</b> 29'42	7°18'16	minimum elong		-3965 Jul 02 j 17:16	7° <b>II</b> 27'58	10°12'01
min. Earth dist.	-3973 Dec 18 j 16:04	24° <b>8</b> 25'15	35.38950 AU	retrograde		-3965 Oct 12 j 16:45	9° <b>II</b> 37'32	
direct	-3972 Mar 06 j 06:44	23° <b>8</b> 15'37		opposition		-3965 Dec 29 j 07:32	8° <b>II</b> 23'01	11°01'35
max. Earth dist.	-3972 Jun 16 j 00:04	25° <b>8</b> 12'29	37.24485 AU	min. Earth dist.		-3964 Jan 01 j 10:37	8° <b>II</b> 18'19	33.38750 AU
conjunction	-3972 Jun 19 j 11:44	25° <b>8</b> 18'55	7°08'20	direct		-3964 Mar 19 j 16:33	7° <b>II</b> 05'18	
minimum elong	-3972 Jun 19 j 11:29	25° <b>8</b> 18'54	7°08'28	max. Earth dist.		-3964 Jun 30 j 10:02	9° <b>II</b> 12'40	35.23002 AU
retrograde	-3972 Sep 29 j 02:57	27° <b>8</b> 19'43		conjunction		-3964 Jul 03 j 21:30	9° <b>II</b> 19'36	10°37'25
opposition	-3972 Dec 16 j 09:57	26° <b>8</b> 07'59	7°46'22	minimum elong		-3964 Jul 03 j 21:09	9° <b>II</b> 19'34	10°37'35
min. Earth dist.	-3972 Dec 19 j 12:38	26° <b>8</b> 03'30	35.13255 AU	retrograde		-3964 Oct 13 j 19:15	11° <b>II</b> 30'29	
direct	-3971 Mar 08 j 01:33	24° <b>8</b> 53'25		opposition		-3964 Dec 30 j 10:19	10° <b>II</b> 15'33	11°28'48
max. Earth dist.	-3971 Jun 17 j 22:56	26° <b>8</b> 51'29	36.98612 AU	min. Earth dist.		-3963 Jan 02 j 14:25	10° <b>II</b> 10'45	33.14586 AU
conjunction	-3971 Jun 21 j 10:44	26° <b>8</b> 57'59	7°34'47	direct		-3963 Mar 21 j 17:07	8° <b>II</b> 57'22	
minimum elong	-3971 Jun 21 j 10:28	26° <b>8</b> 57'58	7°34'56	max. Earth dist.		-3963 Jul 02 j 14:56	11° <b>II</b> 06'08	34.98628 AU
retrograde	-3971 Oct 01 j 01:22	28° <b>8</b> 59'56		conjunction		-3963 Jul 06 j 02:03	11° <b>II</b> 13'07	11°02'43
opposition	-3971 Dec 18 j 07:33	27° <b>8</b> 47'47	8°14'29	minimum elong		-3963 Jul 06 j 01:40	11° <b>II</b> 13'05	11°02'52
min. Earth dist.	-3971 Dec 21 j 11:17	27° <b>8</b> 43'12	34.87666 AU	retrograde		-3963 Oct 16 j 00:50	13° <b>II</b> 25'21	
direct	-3970 Mar 09 j 19:55	26° <b>8</b> 32'45		opposition		-3962 Jan 01 j 13:57	12° <b>II</b> 09'59	11°55'43
max. Earth dist.	-3970 Jun 19 j 22:43	28° <b>8</b> 32'04	36.72889 AU	min. Earth dist.		-3962 Jan 04 j 17:07	12° <b>II</b> 05'13	32.90593 AU
conjunction	-3970 Jun 23 j 10:06	28° <b>8</b> 38'35	8°01'13	direct		-3962 Mar 23 j 19:56	10° <b>II</b> 51'19	
minimum elong	-3970 Jun 23 j 09:49	28° <b>8</b> 38'34	8°01'21	max. Earth dist.		-3962 Jul 04 j 19:36	13° <b>II</b> 01'27	34.74423 AU
retrograde	-3970 Aug 09 j 12:13	0° <b>II</b>		conjunction		-3962 Jul 08 j 07:16	13° <b>II</b> 08'32	11°27'40
	-3970 Oct 03 j 02:16	0° <b>II</b> 41'43		minimum elong		-3962 Jul 08 j 06:53	13° <b>II</b> 08'31	11°27'49



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:37, page 28

Attention, astronomical year style is used: The year -3962 in astronomical counting style is the year 3963 BCE in historical counting style.

retrograde	-3962 Oct 18 j 07:25	15°II22'08		min. Earth dist.	-3953 Jan 23 j 09:26	0°☾43'34	30.92543 AU
opposition	-3961 Jan 03 j 18:29	14°II06'20	12°22'16		-3953 Feb 21 j 11:26	30°☿II	
min. Earth dist.	-3961 Jan 06 j 22:33	14°II01'28	32.66812 AU	direct	-3953 Apr 11 j 07:50	29°II25'25	
direct	-3961 Mar 25 j 21:46	12°II47'10			-3953 May 28 j 18:18	0°☾	
max. Earth dist.	-3961 Jul 07 j 02:54	14°II58'49	34.50460 AU	max. Earth dist.	-3953 Jul 24 j 14:07	1°☾49'22	32.75838 AU
conjunction	-3961 Jul 10 j 13:17	15°II05'52	11°52'14	conjunction	-3953 Jul 27 j 16:04	1°☾56'13	14°45'40
minimum elong	-3961 Jul 10 j 12:53	15°II05'50	11°52'23	minimum elong	-3953 Jul 27 j 15:40	1°☾56'10	14°45'51
retrograde	-3961 Oct 20 j 14:19	17°II20'49		retrograde	-3953 Nov 07 j 04:03	4°☾22'30	
opposition	-3960 Jan 05 j 23:39	16°II04'33	12°48'23	opposition	-3952 Jan 23 j 01:38	3°☾03'02	15°51'59
min. Earth dist.	-3960 Jan 09 j 02:38	15°II59'44	32.43299 AU	min. Earth dist.	-3952 Jan 25 j 21:37	2°☾58'27	30.73428 AU
direct	-3960 Mar 27 j 03:35	14°II44'53		direct	-3952 Apr 12 j 17:12	1°☾39'57	
max. Earth dist.	-3960 Jul 08 j 09:00	16°II57'54	34.26798 AU	max. Earth dist.	-3952 Jul 26 j 05:36	4°☾05'32	32.56724 AU
conjunction	-3960 Jul 11 j 19:59	17°II05'04	12°16'20	conjunction	-3952 Jul 29 j 05:07	4°☾12'13	15°03'21
minimum elong	-3960 Jul 11 j 19:36	17°II05'02	12°16'30	minimum elong	-3952 Jul 29 j 04:46	4°☾12'11	15°03'31
retrograde	-3960 Oct 21 j 23:54	19°II21'24		retrograde	-3952 Nov 08 j 18:36	6°☾39'55	
opposition	-3959 Jan 07 j 05:45	18°II04'41	13°14'00	opposition	-3951 Jan 24 j 15:07	5°☾20'06	16°10'33
min. Earth dist.	-3959 Jan 10 j 08:49	17°II59'50	32.20139 AU	min. Earth dist.	-3951 Jan 27 j 09:15	5°☾15'37	30.54883 AU
direct	-3959 Mar 29 j 09:04	16°II44'31		direct	-3951 Apr 15 j 06:09	3°☾56'40	
max. Earth dist.	-3959 Jul 10 j 18:24	18°II59'07	34.03514 AU	max. Earth dist.	-3951 Jul 28 j 19:38	6°☾23'40	32.38199 AU
conjunction	-3959 Jul 14 j 03:29	19°II06'12	12°39'54	conjunction	-3951 Jul 31 j 18:46	6°☾30'22	15°19'55
minimum elong	-3959 Jul 14 j 03:04	19°II06'10	12°40'05	minimum elong	-3951 Jul 31 j 18:24	6°☾30'20	15°20'05
retrograde	-3959 Oct 24 j 07:39	21°II23'55		retrograde	-3951 Nov 11 j 12:04	8°☾59'25	
opposition	-3958 Jan 09 j 12:48	20°II06'44	13°39'01	opposition	-3950 Jan 27 j 05:31	7°☾39'14	16°27'54
min. Earth dist.	-3958 Jan 12 j 15:05	20°II01'54	31.97400 AU	min. Earth dist.	-3950 Jan 29 j 22:39	7°☾34'49	30.36934 AU
direct	-3958 Mar 31 j 16:34	18°II46'05		direct	-3950 Apr 17 j 19:42	6°☾15'28	
max. Earth dist.	-3958 Jul 13 j 02:44	21°II02'08	33.80714 AU	max. Earth dist.	-3950 Jul 31 j 12:59	8°☾44'02	32.20290 AU
conjunction	-3958 Jul 16 j 11:34	21°II09'15	13°02'51	conjunction	-3950 Aug 03 j 09:21	8°☾50'32	15°35'17
minimum elong	-3958 Jul 16 j 11:11	21°II09'13	13°03'01	minimum elong	-3950 Aug 03 j 09:02	8°☾50'30	15°35'26
retrograde	-3958 Oct 26 j 17:36	23°II28'22		retrograde	-3950 Nov 14 j 03:17	11°☾20'53	
opposition	-3957 Jan 11 j 20:39	22°II10'46	14°03'22	opposition	-3949 Jan 29 j 20:51	10°☾00'22	16°43'57
min. Earth dist.	-3957 Jan 14 j 21:41	22°II05'58	31.75200 AU	min. Earth dist.	-3949 Feb 01 j 12:37	9°☾56'01	30.19592 AU
direct	-3957 Apr 02 j 23:02	20°II49'38		direct	-3949 Apr 20 j 10:55	8°☾36'14	
max. Earth dist.	-3957 Jul 15 j 13:24	23°II07'17	33.58471 AU	max. Earth dist.	-3949 Aug 03 j 04:50	11°☾06'08	32.03039 AU
conjunction	-3957 Jul 18 j 20:28	23°II14'20	13°25'07	conjunction	-3949 Aug 06 j 00:21	11°☾12'37	15°49'22
minimum elong	-3957 Jul 18 j 20:02	23°II14'17	13°25'17	minimum elong	-3949 Aug 06 j 00:02	11°☾12'35	15°49'32
retrograde	-3957 Oct 29 j 02:04	25°II34'52		retrograde	-3949 Nov 16 j 21:06	13°☾44'13	
opposition	-3956 Jan 14 j 05:30	24°II16'50	14°26'56	opposition	-3948 Feb 01 j 12:52	12°☾23'20	16°58'35
min. Earth dist.	-3956 Jan 17 j 06:03	24°II12'03	31.53582 AU	min. Earth dist.	-3948 Feb 04 j 02:41	12°☾19'06	30.02915 AU
direct	-3956 Apr 04 j 06:04	22°II55'16		direct	-3948 Apr 22 j 01:48	10°☾58'52	
max. Earth dist.	-3956 Jul 17 j 00:14	25°II14'29	33.36859 AU	max. Earth dist.	-3948 Aug 04 j 23:27	13°☾30'13	31.86484 AU
conjunction	-3956 Jul 20 j 06:08	25°II21'29	13°46'35	conjunction	-3948 Aug 07 j 16:16	13°☾36'29	16°02'05
minimum elong	-3956 Jul 20 j 05:45	25°II21'27	13°46'45	minimum elong	-3948 Aug 07 j 15:59	13°☾36'27	16°02'15
retrograde	-3956 Oct 30 j 13:59	27°II43'27		retrograde	-3948 Nov 18 j 13:39	16°☾09'16	
opposition	-3955 Jan 15 j 14:59	26°II25'03	14°49'40	opposition	-3947 Feb 03 j 05:47	14°☾48'03	17°11'43
min. Earth dist.	-3955 Jan 18 j 13:28	26°II20'22	31.32603 AU	min. Earth dist.	-3947 Feb 05 j 18:30	14°☾43'51	29.86946 AU
direct	-3955 Apr 06 j 13:26	25°II03'04		direct	-3947 Apr 24 j 18:01	13°☾23'14	
max. Earth dist.	-3955 Jul 19 j 12:05	27°II23'52	33.15882 AU	max. Earth dist.	-3947 Aug 07 j 17:30	15°☾55'52	31.70718 AU
conjunction	-3955 Jul 22 j 16:44	27°II30'50	14°07'14	conjunction	-3947 Aug 10 j 08:34	16°☾02'00	16°13'21
minimum elong	-3955 Jul 22 j 16:20	27°II30'47	14°07'23	minimum elong	-3947 Aug 10 j 08:17	16°☾01'58	16°13'32
retrograde	-3955 Nov 02 j 00:46	29°II54'15		retrograde	-3947 Nov 21 j 08:41	18°☾35'56	
opposition	-3954 Jan 18 j 01:42	28°II35'28	15°11'28	opposition	-3946 Feb 05 j 23:26	17°☾14'21	17°23'15
min. Earth dist.	-3954 Jan 21 j 00:04	28°II30'47	31.12263 AU	min. Earth dist.	-3946 Feb 08 j 09:09	17°☾10'22	29.71785 AU
direct	-3954 Apr 08 j 20:54	27°II13'07		direct	-3946 Apr 27 j 11:00	15°☾49'14	
max. Earth dist.	-3954 Jul 22 j 01:26	29°II35'33	32.95556 AU	max. Earth dist.	-3946 Aug 10 j 13:06	18°☾23'10	31.55808 AU
conjunction	-3954 Jul 25 j 03:56	29°II42'24	14°26'56	conjunction	-3946 Aug 13 j 01:22	18°☾29'05	16°23'05
minimum elong	-3954 Jul 25 j 03:33	29°II42'22	14°27'06	minimum elong	-3946 Aug 13 j 01:09	18°☾29'03	16°23'15
	-3954 Aug 02 j 04:05	0°☾		retrograde	-3946 Nov 24 j 00:59	21°☾04'05	
retrograde	-3954 Nov 04 j 13:45	2°☾07'16		opposition	-3945 Feb 08 j 18:00	19°☾42'11	17°33'05
opposition	-3953 Jan 20 j 13:14	0°☾48'08	15°32'15	min. Earth dist.	-3945 Feb 11 j 02:23	19°☾38'16	29.57507 AU



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:37, page 29

Attention, astronomical year style is used: The year -3945 in astronomical counting style is the year 3946 BCE in historical counting style.

direct	-3945 Apr 30 j 03:25	18° $\mathring{S}$ 16'46		direct	-3937 May 20 j 19:21	8° $\mathring{N}$ 44'35	
max. Earth dist.	-3945 Aug 13 j 09:25	20° $\mathring{S}$ 51'58	31.41865 AU	max. Earth dist.	-3937 Sep 03 j 20:18	11° $\mathring{N}$ 26'59	30.67742 AU
conjunction	-3945 Aug 15 j 18:45	20° $\mathring{S}$ 57'37	16°31'11	conjunction	-3937 Sep 05 j 04:52	11° $\mathring{N}$ 30'18	16°30'48
minimum elong	-3945 Aug 15 j 18:32	20° $\mathring{S}$ 57'36	16°31'21	minimum elong	-3937 Sep 05 j 04:59	11° $\mathring{N}$ 30'19	16°30'56
retrograde	-3945 Nov 26 j 20:01	23° $\mathring{S}$ 33'38		retrograde	-3937 Dec 17 j 18:30	14° $\mathring{N}$ 11'44	
opposition	-3944 Feb 11 j 12:56	22° $\mathring{S}$ 11'27	17°41'08	opposition	-3936 Mar 03 j 19:01	12° $\mathring{N}$ 48'19	17°34'34
min. Earth dist.	-3944 Feb 13 j 17:49	22° $\mathring{S}$ 07'46	29.44196 AU	min. Earth dist.	-3936 Mar 05 j 02:20	12° $\mathring{N}$ 46'07	28.74033 AU
direct	-3944 May 01 j 21:44	20° $\mathring{S}$ 45'47		direct	-3936 May 22 j 18:21	11° $\mathring{N}$ 22'04	
max. Earth dist.	-3944 Aug 15 j 05:54	23° $\mathring{S}$ 22'08	31.28938 AU	max. Earth dist.	-3936 Sep 05 j 18:58	14° $\mathring{N}$ 04'46	30.63023 AU
conjunction	-3944 Aug 17 j 12:43	23° $\mathring{S}$ 27'35	16°37'35	conjunction	-3936 Sep 07 j 01:07	14° $\mathring{N}$ 07'51	16°22'15
minimum elong	-3944 Aug 17 j 12:34	23° $\mathring{S}$ 27'34	16°37'44	minimum elong	-3936 Sep 07 j 01:16	14° $\mathring{N}$ 07'52	16°22'21
retrograde	-3944 Nov 28 j 14:58	26° $\mathring{S}$ 04'33			-3936 Sep 28 j 16:32	15° $\mathring{N}$	
opposition	-3943 Feb 13 j 08:52	24° $\mathring{S}$ 42'07	17°47'19	retrograde	-3936 Dec 19 j 17:42	16° $\mathring{N}$ 49'29	
min. Earth dist.	-3943 Feb 15 j 11:59	24° $\mathring{S}$ 38'33	29.31906 AU	opposition	-3935 Mar 06 j 18:21	15° $\mathring{N}$ 25'59	17°24'32
direct	-3943 May 04 j 14:05	23° $\mathring{S}$ 16'15		min. Earth dist.	-3935 Mar 07 j 21:36	15° $\mathring{N}$ 24'04	28.69653 AU
max. Earth dist.	-3943 Aug 18 j 04:00	25° $\mathring{S}$ 53'48	31.17090 AU		-3935 Mar 22 j 09:33	15° $\mathring{R}$ $\mathring{N}$	
conjunction	-3943 Aug 20 j 07:05	25° $\mathring{S}$ 58'55	16°42'12	direct	-3935 May 25 j 18:14	13° $\mathring{N}$ 59'44	
minimum elong	-3943 Aug 20 j 06:57	25° $\mathring{S}$ 58'54	16°42'22		-3935 Jul 25 j 04:00	15° $\mathring{N}$	
retrograde	-3943 Dec 01 j 10:14	28° $\mathring{S}$ 36'47		conjunction	-3935 Sep 09 j 21:18	16° $\mathring{N}$ 45'28	16°11'46
opposition	-3942 Feb 16 j 05:22	27° $\mathring{S}$ 14'08	17°51'34	minimum elong	-3935 Sep 09 j 21:30	16° $\mathring{N}$ 45'30	16°11'54
min. Earth dist.	-3942 Feb 18 j 04:51	27° $\mathring{S}$ 10'49	29.20654 AU	max. Earth dist.	-3935 Sep 08 j 19:05	16° $\mathring{N}$ 42'48	30.59331 AU
direct	-3942 May 07 j 10:46	25° $\mathring{S}$ 48'08		retrograde	-3935 Dec 22 j 13:36	19° $\mathring{N}$ 27'13	
max. Earth dist.	-3942 Aug 21 j 01:02	28° $\mathring{S}$ 26'40	31.06309 AU	opposition	-3934 Mar 09 j 17:57	18° $\mathring{N}$ 03'38	17°12'26
conjunction	-3942 Aug 23 j 01:53	28° $\mathring{S}$ 31'34	16°45'00	min. Earth dist.	-3934 Mar 10 j 19:01	18° $\mathring{N}$ 01'52	28.66301 AU
minimum elong	-3942 Aug 23 j 01:48	28° $\mathring{S}$ 31'33	16°45'09	direct	-3934 May 28 j 16:50	16° $\mathring{N}$ 37'26	
retrograde	-3942 Sep 30 j 22:35	0° $\mathring{N}$		conjunction	-3934 Sep 12 j 17:18	19° $\mathring{N}$ 22'58	15°59'23
	-3942 Dec 04 j 07:01	1° $\mathring{N}$ 10'16		minimum elong	-3934 Sep 12 j 17:31	19° $\mathring{N}$ 23'00	15°59'30
	-3941 Feb 11 j 14:32	30° $\mathring{R}$ $\mathring{S}$		max. Earth dist.	-3934 Sep 11 j 18:25	19° $\mathring{N}$ 20'38	30.56744 AU
opposition	-3941 Feb 19 j 02:26	29° $\mathring{S}$ 47'26	17°53'49	retrograde	-3934 Dec 25 j 11:14	22° $\mathring{N}$ 04'41	
min. Earth dist.	-3941 Feb 20 j 23:40	29° $\mathring{S}$ 44'16	29.10447 AU	opposition	-3933 Mar 12 j 17:13	20° $\mathring{N}$ 41'03	16°58'16
direct	-3941 May 10 j 05:05	28° $\mathring{S}$ 21'20		min. Earth dist.	-3933 Mar 13 j 13:49	20° $\mathring{N}$ 39'37	28.64048 AU
	-3941 Jul 29 j 00:11	0° $\mathring{N}$		direct	-3933 May 31 j 16:47	19° $\mathring{N}$ 14'55	
max. Earth dist.	-3941 Aug 24 j 00:20	1° $\mathring{N}$ 00'56	30.96590 AU	conjunction	-3933 Sep 15 j 13:08	22° $\mathring{N}$ 00'10	15°45'07
conjunction	-3941 Aug 25 j 21:07	1° $\mathring{N}$ 05'27	16°45'57	minimum elong	-3933 Sep 15 j 13:24	22° $\mathring{N}$ 00'11	15°45'14
minimum elong	-3941 Aug 25 j 21:04	1° $\mathring{N}$ 05'27	16°46'06	max. Earth dist.	-3933 Sep 14 j 17:58	21° $\mathring{N}$ 58'12	30.55302 AU
retrograde	-3941 Dec 07 j 03:24	3° $\mathring{N}$ 44'54		retrograde	-3933 Dec 28 j 08:06	24° $\mathring{N}$ 41'45	
opposition	-3940 Feb 22 j 00:06	2° $\mathring{N}$ 21'56	17°54'04	opposition	-3932 Mar 14 j 16:38	23° $\mathring{N}$ 18'06	16°42'04
min. Earth dist.	-3940 Feb 23 j 18:18	2° $\mathring{N}$ 18'58	29.01232 AU	min. Earth dist.	-3932 Mar 15 j 10:36	23° $\mathring{N}$ 16'50	28.62952 AU
direct	-3940 May 12 j 02:01	0° $\mathring{N}$ 55'45		direct	-3932 Jun 02 j 14:28	21° $\mathring{N}$ 52'03	
max. Earth dist.	-3940 Aug 25 j 21:52	3° $\mathring{N}$ 36'07	30.87886 AU	conjunction	-3932 Sep 17 j 08:40	24° $\mathring{N}$ 36'53	15°28'58
conjunction	-3940 Aug 27 j 16:37	3° $\mathring{N}$ 40'27	16°45'01	minimum elong	-3932 Sep 17 j 08:57	24° $\mathring{N}$ 36'55	15°29'03
minimum elong	-3940 Aug 27 j 16:37	3° $\mathring{N}$ 40'27	16°45'09	max. Earth dist.	-3932 Sep 16 j 17:34	24° $\mathring{N}$ 35'21	30.55081 AU
retrograde	-3940 Dec 09 j 01:45	6° $\mathring{N}$ 20'34		retrograde	-3932 Dec 30 j 03:28	27° $\mathring{N}$ 18'16	
opposition	-3939 Feb 23 j 22:13	4° $\mathring{N}$ 57'27	17°52'17	opposition	-3931 Mar 17 j 15:48	25° $\mathring{N}$ 54'38	16°23'51
min. Earth dist.	-3939 Feb 25 j 13:40	4° $\mathring{N}$ 54'41	28.93002 AU	min. Earth dist.	-3931 Mar 18 j 05:04	25° $\mathring{N}$ 53'42	28.63056 AU
direct	-3939 May 14 j 22:33	3° $\mathring{N}$ 31'13		direct	-3931 Jun 05 j 14:38	24° $\mathring{N}$ 28'44	
max. Earth dist.	-3939 Aug 28 j 22:00	6° $\mathring{N}$ 12'28	30.80184 AU	conjunction	-3931 Sep 20 j 03:58	27° $\mathring{N}$ 13'04	15°11'00
conjunction	-3939 Aug 30 j 12:36	6° $\mathring{N}$ 16'23	16°42'11	minimum elong	-3931 Sep 20 j 04:18	27° $\mathring{N}$ 13'06	15°11'06
minimum elong	-3939 Aug 30 j 12:38	6° $\mathring{N}$ 16'23	16°42'20	max. Earth dist.	-3931 Sep 19 j 16:13	27° $\mathring{N}$ 11'52	30.56103 AU
retrograde	-3939 Dec 11 j 22:48	8° $\mathring{N}$ 57'03		retrograde	-3930 Jan 01 j 23:13	29° $\mathring{N}$ 54'09	
opposition	-3938 Feb 26 j 20:58	7° $\mathring{N}$ 33'50	17°48'26	opposition	-3930 Mar 20 j 14:58	28° $\mathring{N}$ 30'34	16°03'42
min. Earth dist.	-3938 Feb 28 j 09:53	7° $\mathring{N}$ 31'14	28.85722 AU	min. Earth dist.	-3930 Mar 21 j 01:01	28° $\mathring{N}$ 29'52	28.64403 AU
direct	-3938 May 17 j 21:29	6° $\mathring{N}$ 07'35		direct	-3930 Jun 08 j 11:39	27° $\mathring{N}$ 04'52	
max. Earth dist.	-3938 Aug 31 j 20:01	8° $\mathring{N}$ 49'21	30.73473 AU	conjunction	-3930 Sep 22 j 22:55	29° $\mathring{N}$ 48'36	14°51'15
conjunction	-3938 Sep 02 j 08:31	8° $\mathring{N}$ 53'04	16°37'27	minimum elong	-3930 Sep 22 j 23:15	29° $\mathring{N}$ 48'38	14°51'20
minimum elong	-3938 Sep 02 j 08:35	8° $\mathring{N}$ 53'05	16°37'34	max. Earth dist.	-3930 Sep 22 j 15:45	29° $\mathring{N}$ 47'52	30.58386 AU
retrograde	-3938 Dec 14 j 21:24	11° $\mathring{N}$ 34'11			-3930 Sep 27 j 15:11	0° $\mathring{N}$ $\mathring{P}$	
opposition	-3937 Mar 01 j 19:53	10° $\mathring{N}$ 10'51	17°42'32	retrograde	-3929 Jan 04 j 18:32	2° $\mathring{N}$ $\mathring{P}$ 29'18	
min. Earth dist.	-3937 Mar 03 j 05:18	10° $\mathring{N}$ 08'31	28.79404 AU	opposition	-3929 Mar 23 j 13:44	1° $\mathring{N}$ $\mathring{P}$ 05'49	15°41'39



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:37, page 30

Attention, astronomical year style is used: The year -3929 in astronomical counting style is the year 3930 BCE in historical counting style.

min. Earth dist.	-3929 Mar 23 j 19:42	1° $\mathring{\text{M}}$ 05'24	28.66951 AU	direct	-3921 Jul 02 j 10:20	19° $\mathring{\text{M}}$ 44'49	
	-3929 May 07 j 10:10	30° $\mathring{\text{R}}$ 0					
direct	-3929 Jun 11 j 10:07	29° $\mathring{\text{U}}$ 40'21		conjunction	-3921 Oct 15 j 05:04	22° $\mathring{\text{M}}$ 19'22	10°48'48
	-3929 Jul 15 j 08:58	0° $\mathring{\text{M}}$		minimum elong	-3921 Oct 15 j 05:29	22° $\mathring{\text{M}}$ 19'24	10°48'49
				max. Earth dist.	-3921 Oct 16 j 03:39	22° $\mathring{\text{M}}$ 21'34	31.27255 AU
conjunction	-3929 Sep 25 j 17:30	2° $\mathring{\text{M}}$ 23'23	14°29'49	retrograde	-3920 Jan 27 j 06:33	24° $\mathring{\text{M}}$ 53'04	
minimum elong	-3929 Sep 25 j 17:53	2° $\mathring{\text{M}}$ 23'25	14°29'55	min. Earth dist.	-3920 Apr 14 j 07:11	23° $\mathring{\text{M}}$ 32'45	29.36935 AU
max. Earth dist.	-3929 Sep 25 j 13:13	2° $\mathring{\text{M}}$ 22'57	30.61871 AU	opposition	-3920 Apr 15 j 07:15	23° $\mathring{\text{M}}$ 31'08	11°15'36
retrograde	-3928 Jan 07 j 14:09	5° $\mathring{\text{M}}$ 03'38		direct	-3920 Jul 04 j 06:21	22° $\mathring{\text{M}}$ 08'25	
opposition	-3928 Mar 25 j 12:08	3° $\mathring{\text{M}}$ 40'17	15°17'50				
min. Earth dist.	-3928 Mar 25 j 14:37	3° $\mathring{\text{M}}$ 40'07	28.70677 AU	conjunction	-3920 Oct 16 j 18:32	24° $\mathring{\text{M}}$ 41'38	10°16'24
direct	-3928 Jun 13 j 07:15	2° $\mathring{\text{M}}$ 15'04		minimum elong	-3920 Oct 16 j 18:55	24° $\mathring{\text{M}}$ 41'40	10°16'25
				max. Earth dist.	-3920 Oct 17 j 20:04	24° $\mathring{\text{M}}$ 44'06	31.39761 AU
conjunction	-3928 Sep 27 j 11:52	4° $\mathring{\text{M}}$ 57'20	14°06'47	retrograde	-3919 Jan 28 j 19:35	27° $\mathring{\text{M}}$ 14'17	
minimum elong	-3928 Sep 27 j 12:15	4° $\mathring{\text{M}}$ 57'22	14°06'51	min. Earth dist.	-3919 Apr 16 j 21:49	25° $\mathring{\text{M}}$ 54'23	29.49592 AU
max. Earth dist.	-3928 Sep 27 j 12:14	4° $\mathring{\text{M}}$ 57'22	30.66519 AU	opposition	-3919 Apr 18 j 00:49	25° $\mathring{\text{M}}$ 52'34	10°40'26
retrograde	-3927 Jan 09 j 07:59	7° $\mathring{\text{M}}$ 37'02		direct	-3919 Jul 06 j 23:04	24° $\mathring{\text{M}}$ 30'14	
opposition	-3927 Mar 28 j 10:25	6° $\mathring{\text{M}}$ 13'50	14°52'20				
min. Earth dist.	-3927 Mar 28 j 09:36	6° $\mathring{\text{M}}$ 13'53	28.75507 AU	conjunction	-3919 Oct 19 j 07:19	27° $\mathring{\text{M}}$ 02'06	9°43'16
direct	-3927 Jun 16 j 05:45	4° $\mathring{\text{M}}$ 48'55		minimum elong	-3919 Oct 19 j 07:43	27° $\mathring{\text{M}}$ 02'09	9°43'16
				max. Earth dist.	-3919 Oct 20 j 12:50	27° $\mathring{\text{M}}$ 04'57	31.53295 AU
conjunction	-3927 Sep 30 j 05:32	7° $\mathring{\text{M}}$ 30'17	13°42'15	retrograde	-3918 Jan 31 j 07:10	29° $\mathring{\text{M}}$ 33'40	
minimum elong	-3927 Sep 30 j 05:56	7° $\mathring{\text{M}}$ 30'20	13°42'19	min. Earth dist.	-3918 Apr 19 j 11:04	28° $\mathring{\text{M}}$ 14'15	29.63268 AU
max. Earth dist.	-3927 Sep 30 j 08:23	7° $\mathring{\text{M}}$ 30'34	30.72262 AU	opposition	-3918 Apr 20 j 17:32	28° $\mathring{\text{M}}$ 12'13	10°04'32
retrograde	-3926 Jan 12 j 03:50	10° $\mathring{\text{M}}$ 09'22		direct	-3918 Jul 09 j 16:49	26° $\mathring{\text{M}}$ 50'17	
opposition	-3926 Mar 31 j 08:16	8° $\mathring{\text{M}}$ 46'19	14°25'14				
min. Earth dist.	-3926 Mar 31 j 03:28	8° $\mathring{\text{M}}$ 46'39	28.81406 AU	conjunction	-3918 Oct 21 j 19:23	29° $\mathring{\text{M}}$ 20'48	9°09'28
direct	-3926 Jun 19 j 02:06	7° $\mathring{\text{M}}$ 21'42		minimum elong	-3918 Oct 21 j 19:45	29° $\mathring{\text{M}}$ 20'51	9°09'29
				max. Earth dist.	-3918 Oct 23 j 03:15	29° $\mathring{\text{M}}$ 23'51	31.67829 AU
conjunction	-3926 Oct 02 j 23:02	10° $\mathring{\text{M}}$ 02'07	13°16'18		-3918 Nov 08 j 03:08	0° $\mathring{\text{U}}$	
minimum elong	-3926 Oct 02 j 23:26	10° $\mathring{\text{M}}$ 02'10	13°16'21	retrograde	-3917 Feb 02 j 20:15	1° $\mathring{\text{U}}$ 51'16	
max. Earth dist.	-3926 Oct 03 j 06:13	10° $\mathring{\text{M}}$ 02'50	30.79044 AU	min. Earth dist.	-3917 Apr 21 j 23:20	0° $\mathring{\text{U}}$ 32'23	29.77961 AU
retrograde	-3925 Jan 14 j 20:57	12° $\mathring{\text{M}}$ 40'29		opposition	-3917 Apr 23 j 09:19	0° $\mathring{\text{U}}$ 30'08	9°27'59
opposition	-3925 Apr 03 j 05:34	11° $\mathring{\text{M}}$ 17'37	13°56'41		-3917 May 12 j 18:25	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$	
min. Earth dist.	-3925 Apr 02 j 22:19	11° $\mathring{\text{M}}$ 18'07	28.88301 AU	direct	-3917 Jul 12 j 07:15	29° $\mathring{\text{M}}$ 08'36	
direct	-3925 Jun 21 j 23:53	9° $\mathring{\text{M}}$ 53'18			-3917 Sep 07 j 06:56	0° $\mathring{\text{U}}$	
conjunction	-3925 Oct 05 j 15:53	12° $\mathring{\text{M}}$ 32'41	12°49'02	conjunction	-3917 Oct 24 j 06:53	1° $\mathring{\text{U}}$ 37'47	8°35'07
minimum elong	-3925 Oct 05 j 16:18	12° $\mathring{\text{M}}$ 32'43	12°49'05	minimum elong	-3917 Oct 24 j 07:14	1° $\mathring{\text{U}}$ 37'49	8°35'08
max. Earth dist.	-3925 Oct 06 j 01:17	12° $\mathring{\text{M}}$ 33'37	30.86815 AU	max. Earth dist.	-3917 Oct 25 j 18:46	1° $\mathring{\text{U}}$ 41'11	31.83336 AU
retrograde	-3924 Jan 17 j 16:06	15° $\mathring{\text{M}}$ 10'15		retrograde	-3916 Feb 05 j 06:13	4° $\mathring{\text{U}}$ 07'08	
opposition	-3924 Apr 05 j 02:20	13° $\mathring{\text{M}}$ 47'33	13°26'46	min. Earth dist.	-3916 Apr 23 j 12:04	2° $\mathring{\text{U}}$ 48'44	29.93592 AU
min. Earth dist.	-3924 Apr 04 j 14:58	13° $\mathring{\text{M}}$ 48'20	28.96156 AU	opposition	-3916 Apr 25 j 00:31	2° $\mathring{\text{U}}$ 46'19	8°50'55
direct	-3924 Jun 23 j 21:34	12° $\mathring{\text{M}}$ 23'33		direct	-3916 Jul 13 j 23:06	1° $\mathring{\text{U}}$ 25'15	
conjunction	-3924 Oct 07 j 08:12	15° $\mathring{\text{M}}$ 01'49	12°20'33	conjunction	-3916 Oct 25 j 17:25	3° $\mathring{\text{U}}$ 53'05	8°00'19
minimum elong	-3924 Oct 07 j 08:37	15° $\mathring{\text{M}}$ 01'51	12°20'36	minimum elong	-3916 Oct 25 j 17:44	3° $\mathring{\text{U}}$ 53'06	8°00'20
max. Earth dist.	-3924 Oct 07 j 21:32	15° $\mathring{\text{M}}$ 03'08	30.95521 AU	max. Earth dist.	-3916 Oct 27 j 07:08	3° $\mathring{\text{U}}$ 56'37	31.99739 AU
retrograde	-3923 Jan 19 j 07:56	17° $\mathring{\text{M}}$ 38'31		retrograde	-3915 Feb 06 j 18:35	6° $\mathring{\text{U}}$ 21'19	
opposition	-3923 Apr 07 j 22:44	16° $\mathring{\text{M}}$ 16'00	12°55'36	min. Earth dist.	-3915 Apr 25 j 22:46	5° $\mathring{\text{U}}$ 03'28	30.10112 AU
min. Earth dist.	-3923 Apr 07 j 09:13	16° $\mathring{\text{M}}$ 16'55	29.04938 AU	opposition	-3915 Apr 27 j 14:59	5° $\mathring{\text{U}}$ 00'50	8°13'25
direct	-3923 Jun 26 j 17:47	14° $\mathring{\text{M}}$ 52'18		direct	-3915 Jul 16 j 11:59	3° $\mathring{\text{U}}$ 40'13	
conjunction	-3923 Oct 09 j 23:53	17° $\mathring{\text{M}}$ 29'23	11°50'57	conjunction	-3915 Oct 28 j 03:31	6° $\mathring{\text{U}}$ 06'41	7°25'10
minimum elong	-3923 Oct 10 j 00:19	17° $\mathring{\text{M}}$ 29'26	11°51'00	minimum elong	-3915 Oct 28 j 03:50	6° $\mathring{\text{U}}$ 06'43	7°25'10
max. Earth dist.	-3923 Oct 10 j 15:49	17° $\mathring{\text{M}}$ 30'58	31.05165 AU	max. Earth dist.	-3915 Oct 29 j 20:57	6° $\mathring{\text{U}}$ 10'33	32.16960 AU
retrograde	-3922 Jan 22 j 01:00	20° $\mathring{\text{M}}$ 05'08		retrograde	-3914 Feb 09 j 04:10	8° $\mathring{\text{U}}$ 33'48	
opposition	-3922 Apr 10 j 18:16	18° $\mathring{\text{M}}$ 42'48	12°23'17	min. Earth dist.	-3914 Apr 28 j 10:58	7° $\mathring{\text{U}}$ 16'23	30.27427 AU
min. Earth dist.	-3922 Apr 10 j 00:31	18° $\mathring{\text{M}}$ 44'01	29.14649 AU	opposition	-3914 Apr 30 j 04:45	7° $\mathring{\text{U}}$ 13'40	7°35'37
direct	-3922 Jun 29 j 14:55	17° $\mathring{\text{M}}$ 19'26		direct	-3914 Jul 19 j 00:43	5° $\mathring{\text{U}}$ 53'30	
conjunction	-3922 Oct 12 j 14:49	19° $\mathring{\text{M}}$ 55'16	11°20'21	conjunction	-3914 Oct 30 j 12:50	8° $\mathring{\text{U}}$ 18'36	6°49'46
minimum elong	-3922 Oct 12 j 15:13	19° $\mathring{\text{M}}$ 55'18	11°20'23	minimum elong	-3914 Oct 30 j 13:06	8° $\mathring{\text{U}}$ 18'38	6°49'45
max. Earth dist.	-3922 Oct 13 j 10:11	19° $\mathring{\text{M}}$ 57'10	31.15729 AU	max. Earth dist.	-3914 Nov 01 j 07:57	8° $\mathring{\text{U}}$ 22'36	32.34920 AU
retrograde	-3921 Jan 24 j 16:31	22° $\mathring{\text{M}}$ 30'01		retrograde	-3913 Feb 11 j 15:41	10° $\mathring{\text{U}}$ 44'34	
opposition	-3921 Apr 13 j 13:15	21° $\mathring{\text{M}}$ 07'52	11°49'55	min. Earth dist.	-3913 Apr 30 j 20:22	9° $\mathring{\text{U}}$ 27'43	30.45452 AU
min. Earth dist.	-3921 Apr 12 j 17:11	21° $\mathring{\text{M}}$ 09'14	29.25307 AU	opposition	-3913 May 02 j 17:39	9° $\mathring{\text{U}}$ 24'47	6°57'37



## Planetary Phenomena of Pluto from -4400 through -3900 (UT), Astrodienst AG 7-Dez-2017 14:37, page 31

Attention, astronomical year style is used: The year -3913 in astronomical counting style is the year 3914 BCE in historical counting style.

direct	-3913 Jul 21 j 14:53	8° <del>2</del> 05'04		minimum elong	-3905 Nov 17 j 18:08	26° <del>2</del> 44'04	1°31'36
				max. Earth dist.	-3905 Nov 20 j 07:42	26° <del>2</del> 49'21	34.21259 AU
conjunction	-3913 Nov 01 j 21:33	10° <del>2</del> 28'48	6°14'11	retrograde	-3904 Feb 29 j 19:37	28° <del>2</del> 59'25	
minimum elong	-3913 Nov 01 j 21:49	10° <del>2</del> 28'50	6°14'09	min. Earth dist.	-3904 May 18 j 11:42	27° <del>2</del> 46'24	32.32831 AU
max. Earth dist.	-3913 Nov 03 j 19:29	10° <del>2</del> 33'01	32.53512 AU	opposition	-3904 May 21 j 03:37	27° <del>2</del> 42'27	1°18'56
retrograde	-3912 Feb 14 j 01:45	12° <del>2</del> 53'37		direct	-3904 Aug 09 j 05:30	26° <del>2</del> 26'23	
min. Earth dist.	-3912 May 02 j 07:18	11° <del>2</del> 37'09	30.64106 AU				
opposition	-3912 May 04 j 05:55	11° <del>2</del> 34'09	6°19'29	conjunction	-3904 Nov 18 j 20:36	28° <del>2</del> 37'59	0°57'28
direct	-3912 Jul 23 j 03:18	10° <del>2</del> 14'53		minimum elong	-3904 Nov 18 j 20:38	28° <del>2</del> 37'59	0°57'23
				max. Earth dist.	-3904 Nov 21 j 12:15	28° <del>2</del> 43'24	34.44565 AU
conjunction	-3912 Nov 03 j 05:40	12° <del>2</del> 37'15	5°38'30		-3903 Jan 01 j 01:26	0° <del>0</del>	
minimum elong	-3912 Nov 03 j 05:54	12° <del>2</del> 37'16	5°38'28	retrograde	-3903 Mar 02 j 23:55	0° <del>0</del> 52'16	
max. Earth dist.	-3912 Nov 05 j 05:28	12° <del>2</del> 41'36	32.72690 AU		-3903 May 06 j 12:37	30° <del>0</del> R <del>2</del>	
retrograde	-3911 Feb 15 j 09:54	15° <del>2</del> 00'52		min. Earth dist.	-3903 May 20 j 16:07	29° <del>2</del> 39'37	32.56331 AU
min. Earth dist.	-3911 May 04 j 15:52	13° <del>2</del> 44'54	30.83321 AU	opposition	-3903 May 23 j 09:08	29° <del>2</del> 35'39	0°42'47
opposition	-3911 May 06 j 17:24	13° <del>2</del> 41'44	5°41'20	direct	-3903 Aug 11 j 10:28	28° <del>2</del> 20'01	
direct	-3911 Jul 25 j 16:16	12° <del>2</del> 22'53			-3903 Nov 05 j 19:36	0° <del>0</del>	
conjunction	-3911 Nov 05 j 12:57	14° <del>2</del> 43'52	5°02'48	conjunction	-3903 Nov 20 j 22:34	0° <del>0</del> 30'24	0°23'40
minimum elong	-3911 Nov 05 j 13:09	14° <del>2</del> 43'53	5°02'46	minimum elong	-3903 Nov 20 j 22:35	0° <del>0</del> 30'24	0°23'36
max. Earth dist.	-3911 Nov 07 j 14:31	14° <del>2</del> 48'20	32.92374 AU	max. Earth dist.	-3903 Nov 23 j 16:05	0° <del>0</del> 35'56	34.68300 AU
retrograde	-3910 Feb 17 j 17:08	17° <del>2</del> 06'17		retrograde	-3902 Mar 05 j 01:22	2° <del>0</del> 43'36	
min. Earth dist.	-3910 May 07 j 01:05	15° <del>2</del> 50'43	31.03065 AU	min. Earth dist.	-3902 May 22 j 19:00	1° <del>0</del> 31'25	32.80219 AU
opposition	-3910 May 09 j 04:13	15° <del>2</del> 47'28	5°03'13	opposition	-3902 May 25 j 13:48	1° <del>0</del> 27'21	0°07'07
direct	-3910 Jul 28 j 03:31	14° <del>2</del> 29'02		desc. node	-3902 Aug 07 j 11:49	0° <del>0</del> 12'44	
				direct	-3902 Aug 13 j 16:44	0° <del>0</del> 12'09	
conjunction	-3910 Nov 07 j 19:44	16° <del>2</del> 48'36	4°27'10	conjunction	-3902 Nov 22 j 23:58	2° <del>0</del> 21'21	0°-9'-45
minimum elong	-3910 Nov 07 j 19:55	16° <del>2</del> 48'37	4°27'07	minimum elong	-3902 Nov 22 j 23:57	2° <del>0</del> 21'21	0°09'51
max. Earth dist.	-3910 Nov 09 j 23:48	16° <del>2</del> 53'16	33.12555 AU	behind sun begin	-3902 Nov 22 j 18:44	2° <del>0</del> 20'56	
retrograde	-3909 Feb 19 j 22:08	19° <del>2</del> 09'48		behind sun end	-3902 Nov 23 j 05:11	2° <del>0</del> 21'46	
min. Earth dist.	-3909 May 09 j 08:52	17° <del>2</del> 54'39	31.23305 AU	max. Earth dist.	-3902 Nov 25 j 18:12	2° <del>0</del> 26'54	34.92357 AU
opposition	-3909 May 11 j 13:55	17° <del>2</del> 51'17	4°25'13	retrograde	-3901 Mar 07 j 02:48	4° <del>0</del> 33'30	
direct	-3909 Jul 30 j 16:01	16° <del>2</del> 33'14		min. Earth dist.	-3901 May 24 j 21:34	3° <del>0</del> 21'45	33.04430 AU
				opposition	-3901 May 27 j 17:45	3° <del>0</del> 17'37	0°-28'-1
conjunction	-3909 Nov 10 j 01:34	18° <del>2</del> 51'25	3°51'38	direct	-3901 Aug 15 j 20:35	2° <del>0</del> 02'51	
minimum elong	-3909 Nov 10 j 01:43	18° <del>2</del> 51'26	3°51'35				
max. Earth dist.	-3909 Nov 12 j 06:48	18° <del>2</del> 56'08	33.33218 AU	conjunction	-3901 Nov 25 j 00:59	4° <del>0</del> 10'54	0°-42'-37
retrograde	-3908 Feb 22 j 04:19	21° <del>2</del> 11'25		minimum elong	-3901 Nov 25 j 00:57	4° <del>0</del> 10'53	0°42'43
min. Earth dist.	-3908 May 10 j 15:29	19° <del>2</del> 56'41	31.44083 AU	max. Earth dist.	-3901 Nov 27 j 21:23	4° <del>0</del> 16'35	35.16671 AU
opposition	-3908 May 12 j 23:02	19° <del>2</del> 53'11	3°47'23	retrograde	-3900 Mar 08 j 01:33	6° <del>0</del> 22'01	
direct	-3908 Aug 01 j 00:43	18° <del>2</del> 35'30		min. Earth dist.	-3900 May 26 j 00:28	5° <del>0</del> 10'38	33.28862 AU
				opposition	-3900 May 28 j 21:11	5° <del>0</del> 06'29	-1°-2'-38
conjunction	-3908 Nov 11 j 06:41	20° <del>2</del> 52'18	3°16'16	direct	-3900 Aug 17 j 01:46	3° <del>0</del> 52'08	
minimum elong	-3908 Nov 11 j 06:49	20° <del>2</del> 52'19	3°16'12				
max. Earth dist.	-3908 Nov 13 j 15:03	20° <del>2</del> 57'16	33.54402 AU	conjunction	-3900 Nov 26 j 01:12	5° <del>0</del> 59'02	-1°-15'-1
retrograde	-3907 Feb 23 j 06:43	23° <del>2</del> 11'07		minimum elong	-3900 Nov 26 j 01:09	5° <del>0</del> 59'02	1°15'08
min. Earth dist.	-3907 May 12 j 22:27	21° <del>2</del> 56'45	31.65412 AU	max. Earth dist.	-3900 Nov 28 j 21:37	6° <del>0</del> 04'41	35.41155 AU
opposition	-3907 May 15 j 07:26	21° <del>2</del> 53'10	3°09'47				
direct	-3907 Aug 03 j 10:21	20° <del>2</del> 35'53					
conjunction	-3907 Nov 13 j 11:07	22° <del>2</del> 51'19	2°41'07				
minimum elong	-3907 Nov 13 j 11:14	22° <del>2</del> 51'19	2°41'03				
max. Earth dist.	-3907 Nov 15 j 20:30	22° <del>2</del> 56'20	33.76138 AU				
retrograde	-3906 Feb 25 j 11:56	25° <del>2</del> 08'57					
min. Earth dist.	-3906 May 15 j 02:48	23° <del>2</del> 55'03	31.87331 AU				
opposition	-3906 May 17 j 14:51	23° <del>2</del> 51'19	2°32'28				
direct	-3906 Aug 05 j 16:37	22° <del>2</del> 34'25					
conjunction	-3906 Nov 15 j 14:58	24° <del>2</del> 48'32	2°06'14				
minimum elong	-3906 Nov 15 j 15:03	24° <del>2</del> 48'32	2°06'10				
max. Earth dist.	-3906 Nov 18 j 03:15	24° <del>2</del> 53'45	33.98429 AU				
retrograde	-3905 Feb 27 j 15:15	27° <del>2</del> 05'02					
min. Earth dist.	-3905 May 17 j 08:41	25° <del>2</del> 51'29	32.09817 AU				
opposition	-3905 May 19 j 21:41	25° <del>2</del> 47'43	1°55'30				
direct	-3905 Aug 07 j 22:43	24° <del>2</del> 31'13					
conjunction	-3905 Nov 17 j 18:05	26° <del>2</del> 44'03	1°31'40				



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 1

Attention, astronomical year style is used: The year -3900 in astronomical counting style is the year 3901 BCE in historical counting style.

retrograde	-3900 Mar 08 j 01:33	6°M22'01		conjunction	-3893 Dec 08 j 12:34	17°M55'50	-4°-46'-26
min. Earth dist.	-3900 May 26 j 00:28	5°M10'38	33.28862 AU	minimum elong	-3893 Dec 08 j 12:25	17°M55'49	4°46'33
opposition	-3900 May 28 j 21:11	5°M06'29	-1°-2'-38	max. Earth dist.	-3893 Dec 11 j 15:34	18°M01'42	37.15511 AU
direct	-3900 Aug 17 j 01:46	3°M52'08		retrograde	-3892 Mar 21 j 12:18	19°M59'05	
				min. Earth dist.	-3892 Jun 08 j 20:50	18°M50'25	35.29027 AU
conjunction	-3900 Nov 26 j 01:12	5°M59'02	-1°-15'-1	opposition	-3892 Jun 12 j 01:50	18°M45'57	-5°-17'-40
minimum elong	-3900 Nov 26 j 01:09	5°M59'02	1°15'08	direct	-3892 Aug 31 j 09:00	17°M34'22	
max. Earth dist.	-3900 Nov 28 j 21:37	6°M04'41	35.41155 AU				
retrograde	-3899 Mar 10 j 02:50	8°M09'08		conjunction	-3892 Dec 09 j 08:37	19°M32'47	-5°-14'-14
min. Earth dist.	-3899 May 28 j 01:22	6°M58'11	33.53459 AU	minimum elong	-3892 Dec 09 j 08:27	19°M32'46	5°14'23
opposition	-3899 May 31 j 00:01	6°M53'57	-1°-36'-41	max. Earth dist.	-3892 Dec 12 j 13:33	19°M38'46	37.41039 AU
direct	-3899 Aug 19 j 03:46	5°M40'00		retrograde	-3891 Mar 23 j 07:49	21°M35'11	
				min. Earth dist.	-3891 Jun 10 j 19:07	20°M26'46	35.54783 AU
conjunction	-3899 Nov 28 j 01:11	7°M45'46	-1°-46'-55	opposition	-3891 Jun 13 j 23:55	20°M22'21	-5°-46'-35
minimum elong	-3899 Nov 28 j 01:07	7°M45'45	1°47'01	direct	-3891 Sep 02 j 06:58	19°M11'07	
max. Earth dist.	-3899 Nov 30 j 23:24	7°M51'31	35.65747 AU				
retrograde	-3898 Mar 12 j 01:58	9°M54'52		conjunction	-3891 Dec 11 j 04:22	21°M08'36	-5°-41'-25
min. Earth dist.	-3898 May 30 j 03:48	8°M44'11	33.78155 AU	minimum elong	-3891 Dec 11 j 04:12	21°M08'35	5°41'32
opposition	-3898 Jun 02 j 02:10	8°M40'00	-2°-10'-9	max. Earth dist.	-3891 Dec 14 j 09:27	21°M14'32	37.66700 AU
direct	-3898 Aug 21 j 06:00	7°M26'24		retrograde	-3890 Mar 25 j 05:07	23°M10'07	
				min. Earth dist.	-3890 Jun 12 j 14:51	22°M02'05	35.80642 AU
conjunction	-3898 Nov 30 j 00:31	9°M31'03	-2°-18'-16	opposition	-3890 Jun 15 j 21:11	21°M57'36	-6°-14'-49
minimum elong	-3898 Nov 30 j 00:27	9°M31'03	2°18'23	direct	-3890 Sep 04 j 02:40	20°M46'43	
max. Earth dist.	-3898 Dec 02 j 22:47	9°M36'46	35.90418 AU				
retrograde	-3897 Mar 14 j 02:54	11°M39'08		conjunction	-3890 Dec 12 j 23:38	22°M43'18	-6°-7'-58
min. Earth dist.	-3897 Jun 01 j 03:29	10°M28'51	34.02929 AU	minimum elong	-3890 Dec 12 j 23:27	22°M43'17	6°08'07
opposition	-3897 Jun 04 j 03:36	10°M24'34	-2°-43'-1	max. Earth dist.	-3890 Dec 16 j 05:28	22°M49'15	37.92413 AU
direct	-3897 Aug 23 j 06:42	9°M11'20		retrograde	-3889 Mar 27 j 01:30	24°M43'59	
				min. Earth dist.	-3889 Jun 14 j 12:06	23°M36'14	36.06545 AU
conjunction	-3897 Dec 01 j 23:08	11°M14'53	-2°-49'-4	opposition	-3889 Jun 17 j 18:13	23°M31'47	-6°-42'-21
minimum elong	-3897 Dec 01 j 23:02	11°M14'52	2°49'11	direct	-3889 Sep 05 j 22:34	22°M21'14	
max. Earth dist.	-3897 Dec 04 j 22:37	11°M20'38	36.15144 AU				
retrograde	-3896 Mar 15 j 02:49	13°M21'57		conjunction	-3889 Dec 14 j 18:32	24°M16'56	-6°-33'-54
min. Earth dist.	-3896 Jun 02 j 04:18	12°M11'56	34.27807 AU	minimum elong	-3889 Dec 14 j 18:21	24°M16'55	6°34'03
opposition	-3896 Jun 05 j 04:34	12°M07'41	-3°-15'-15	max. Earth dist.	-3889 Dec 18 j 01:18	24°M22'55	38.18127 AU
direct	-3896 Aug 24 j 06:11	10°M54'46		retrograde	-3888 Mar 27 j 20:07	26°M16'48	
				min. Earth dist.	-3888 Jun 15 j 08:03	25°M09'21	36.32402 AU
conjunction	-3896 Dec 02 j 21:20	12°M57'14	-3°-19'-19	opposition	-3888 Jun 18 j 14:40	25°M04'54	-7°-9'-14
minimum elong	-3896 Dec 02 j 21:14	12°M57'13	3°19'27	direct	-3888 Sep 06 j 20:41	23°M54'41	
max. Earth dist.	-3896 Dec 05 j 22:01	13°M03'02	36.39990 AU				
	-3895 Mar 01 j 12:38	15°M		conjunction	-3888 Dec 15 j 13:03	25°M49'32	-6°-59'-13
retrograde	-3895 Mar 16 j 23:37	15°M03'18		minimum elong	-3888 Dec 15 j 12:51	25°M49'31	6°59'22
	-3895 Apr 01 j 13:27	15°RM		max. Earth dist.	-3888 Dec 18 j 19:15	25°M55'26	38.43755 AU
min. Earth dist.	-3895 Jun 04 j 03:10	13°M53'37	34.52823 AU	retrograde	-3887 Mar 29 j 15:26	27°M48'35	
opposition	-3895 Jun 07 j 04:45	13°M49'18	-3°-46'-51	min. Earth dist.	-3887 Jun 17 j 03:37	26°M41'26	36.58169 AU
direct	-3895 Aug 26 j 08:56	12°M36'43		opposition	-3887 Jun 20 j 10:45	26°M36'58	-7°-35'-26
				direct	-3887 Sep 08 j 16:52	25°M27'04	
conjunction	-3895 Dec 04 j 18:49	14°M38'08	-3°-48'-57				
minimum elong	-3895 Dec 04 j 18:41	14°M38'07	3°49'05	conjunction	-3887 Dec 17 j 07:22	27°M21'04	-7°-23'-55
max. Earth dist.	-3895 Dec 07 j 19:52	14°M43'55	36.64977 AU	minimum elong	-3887 Dec 17 j 07:10	27°M21'03	7°24'03
	-3895 Dec 16 j 07:47	15°M		max. Earth dist.	-3887 Dec 20 j 14:39	27°M27'01	38.69247 AU
retrograde	-3894 Mar 18 j 21:09	16°M43'14		retrograde	-3886 Mar 31 j 07:27	29°M19'19	
min. Earth dist.	-3894 Jun 06 j 01:44	15°M33'52	34.78033 AU	min. Earth dist.	-3886 Jun 19 j 00:04	28°M12'24	36.83762 AU
opposition	-3894 Jun 09 j 04:27	15°M29'31	-4°-17'-48	opposition	-3886 Jun 22 j 06:22	28°M08'00	-8°00'-58
	-3894 Jun 30 j 20:11	15°RM		direct	-3886 Sep 10 j 14:21	26°M58'23	
direct	-3894 Aug 28 j 09:33	14°M17'15					
	-3894 Oct 23 j 01:51	15°M		conjunction	-3886 Dec 19 j 01:13	28°M51'33	-7°-48'00
				minimum elong	-3886 Dec 19 j 01:00	28°M51'32	7°48'09
conjunction	-3894 Dec 06 j 16:02	16°M17'38	-4°-18'00	max. Earth dist.	-3886 Dec 22 j 07:30	28°M57'23	38.94552 AU
minimum elong	-3894 Dec 06 j 15:54	16°M17'38	4°18'09		-3885 Jan 28 j 23:18	0°Z	
max. Earth dist.	-3894 Dec 09 j 19:02	16°M23'33	36.90150 AU	retrograde	-3885 Apr 02 j 00:34	0°Z49'00	
retrograde	-3893 Mar 20 j 16:01	18°M21'48			-3885 Jun 07 j 08:51	30°RM	
min. Earth dist.	-3893 Jun 08 j 00:18	17°M12'44	35.03429 AU	min. Earth dist.	-3885 Jun 20 j 18:04	29°M42'22	37.09169 AU
opposition	-3893 Jun 11 j 03:20	17°M08'22	-4°-48'-4	opposition	-3885 Jun 24 j 01:20	29°M37'56	-8°-25'-51
direct	-3893 Aug 30 j 10:50	15°M56'27		direct	-3885 Sep 12 j 09:49	28°M28'36	



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 2

Attention, astronomical year style is used: The year -3885 in astronomical counting style is the year 3886 BCE in historical counting style.

	-3885 Dec 08 j 22:13	0°♊		conjunction	-3876 Jan 01 j 00:31	11°♊41'13	-10°-57'-12
				minimum elong	-3876 Jan 01 j 00:19	11°♊41'12	10°57'23
conjunction	-3885 Dec 20 j 18:37	0°♊20'56	-8°-11'-28	max. Earth dist.	-3876 Jan 04 j 09:18	11°♊46'54	41.17469 AU
minimum elong	-3885 Dec 20 j 18:25	0°♊20'55	8°11'37	retrograde	-3876 Apr 14 j 00:51	13°♊32'24	
max. Earth dist.	-3885 Dec 24 j 01:45	0°♊26'47	39.19664 AU	min. Earth dist.	-3876 Jul 03 j 02:27	12°♊27'57	39.33528 AU
retrograde	-3884 Apr 02 j 18:14	2°♊17'37		opposition	-3876 Jul 06 j 09:50	12°♊23'41	-11°-40'-10
min. Earth dist.	-3884 Jun 21 j 13:44	1°♊11'09	37.34409 AU	direct	-3876 Sep 24 j 17:37	11°♊16'48	
opposition	-3884 Jun 24 j 20:04	1°♊06'47	-8°-50'-4				
	-3884 Aug 31 j 03:05	30°♋		conjunction	-3875 Jan 01 j 14:49	13°♊02'47	-11°-15'-15
direct	-3884 Sep 13 j 04:01	29°♋57'43		minimum elong	-3875 Jan 01 j 14:36	13°♊02'46	11°15'25
	-3884 Sep 26 j 01:57	0°♋		max. Earth dist.	-3875 Jan 04 j 22:30	13°♊08'22	41.41628 AU
				retrograde	-3875 Apr 15 j 16:16	14°♊53'22	
conjunction	-3884 Dec 21 j 11:33	1°♊49'14	-8°-34'-20	min. Earth dist.	-3875 Jul 04 j 18:00	13°♊49'08	39.57766 AU
minimum elong	-3884 Dec 21 j 11:20	1°♊49'13	8°34'30	opposition	-3875 Jul 08 j 01:05	13°♊44'53	-11°-58'-37
max. Earth dist.	-3884 Dec 24 j 18:38	1°♊55'02	39.44635 AU	direct	-3875 Sep 26 j 08:25	12°♊38'17	
retrograde	-3883 Apr 04 j 11:37	3°♊45'08					
min. Earth dist.	-3883 Jun 23 j 06:59	2°♊38'56	37.59521 AU	conjunction	-3874 Jan 03 j 05:12	14°♊23'39	-11°-32'-45
opposition	-3883 Jun 26 j 14:12	2°♊34'33	-9°-13'-37	minimum elong	-3874 Jan 03 j 05:00	14°♊23'38	11°32'55
direct	-3883 Sep 14 j 21:38	1°♊25'44		max. Earth dist.	-3874 Jan 06 j 13:29	14°♊29'14	41.65483 AU
				retrograde	-3874 Apr 17 j 04:05	16°♊13'37	
conjunction	-3883 Dec 23 j 04:06	3°♊16'27	-8°-56'-35	min. Earth dist.	-3874 Jul 06 j 10:06	15°♊09'33	39.81657 AU
minimum elong	-3883 Dec 23 j 03:54	3°♊16'27	8°56'44	opposition	-3874 Jul 09 j 15:49	15°♊05'23	-12°-16'-28
max. Earth dist.	-3883 Dec 26 j 11:09	3°♊22'13	39.69492 AU	direct	-3874 Sep 28 j 01:48	13°♊59'01	
retrograde	-3882 Apr 06 j 04:58	5°♊11'37					
min. Earth dist.	-3882 Jun 25 j 00:49	4°♊05'38	37.84569 AU	conjunction	-3873 Jan 04 j 19:11	15°♊43'47	-11°-49'-42
opposition	-3882 Jun 28 j 07:51	4°♊01'16	-9°-36'-31	minimum elong	-3873 Jan 04 j 18:58	15°♊43'46	11°49'52
direct	-3882 Sep 16 j 15:00	2°♊52'42		max. Earth dist.	-3873 Jan 08 j 01:51	15°♊49'14	41.88986 AU
				retrograde	-3873 Apr 18 j 17:14	17°♊33'09	
conjunction	-3882 Dec 24 j 20:25	4°♊42'41	-9°-18'-13	min. Earth dist.	-3873 Jul 08 j 00:10	16°♊29'18	40.05186 AU
minimum elong	-3882 Dec 24 j 20:12	4°♊42'40	9°18'22	opposition	-3873 Jul 11 j 06:19	16°♊25'08	-12°-33'-47
max. Earth dist.	-3882 Dec 28 j 04:34	4°♊48'30	39.94301 AU	direct	-3873 Sep 29 j 16:48	15°♊18'59	
retrograde	-3881 Apr 07 j 19:17	6°♊37'06					
min. Earth dist.	-3881 Jun 26 j 18:02	5°♊31'22	38.09564 AU	conjunction	-3872 Jan 06 j 08:42	17°♊03'07	-12°-6'-9
opposition	-3881 Jun 30 j 01:05	5°♊27'00	-9°-58'-45	minimum elong	-3872 Jan 06 j 08:30	17°♊03'06	12°06'19
direct	-3881 Sep 18 j 10:21	4°♊18'43		max. Earth dist.	-3872 Jan 09 j 15:31	17°♊08'33	42.12117 AU
				retrograde	-3872 Apr 19 j 05:54	18°♊51'53	
conjunction	-3881 Dec 26 j 12:05	6°♊07'58	-9°-39'-13	min. Earth dist.	-3872 Jul 08 j 16:04	17°♊48'09	40.28359 AU
minimum elong	-3881 Dec 26 j 11:52	6°♊07'57	9°39'23	opposition	-3872 Jul 11 j 20:36	17°♊44'04	-12°-50'-31
max. Earth dist.	-3881 Dec 29 j 19:35	6°♊13'42	40.19072 AU	direct	-3872 Sep 30 j 08:13	16°♊38'07	
retrograde	-3880 Apr 08 j 11:27	8°♊01'42					
min. Earth dist.	-3880 Jun 27 j 09:53	6°♊56'15	38.34540 AU	conjunction	-3871 Jan 06 j 22:07	18°♊21'38	-12°-22'-3
opposition	-3880 Jun 30 j 18:00	6°♊51'51	-10°-20'-19	minimum elong	-3871 Jan 06 j 21:56	18°♊21'38	12°22'13
direct	-3880 Sep 19 j 03:11	5°♊43'51		max. Earth dist.	-3871 Jan 10 j 04:23	18°♊27'00	42.34929 AU
				retrograde	-3871 Apr 20 j 20:18	20°♊09'48	
conjunction	-3880 Dec 27 j 03:39	7°♊32'24	-9°-59'-37	min. Earth dist.	-3871 Jul 10 j 05:33	19°♊06'15	40.51220 AU
minimum elong	-3880 Dec 27 j 03:25	7°♊32'23	9°59'46	opposition	-3871 Jul 13 j 10:18	19°♊02'10	-13°-6'-42
max. Earth dist.	-3880 Dec 30 j 12:26	7°♊38'12	40.43811 AU	direct	-3871 Oct 01 j 21:12	17°♊56'24	
retrograde	-3879 Apr 10 j 00:45	9°♊25'28					
min. Earth dist.	-3879 Jun 29 j 03:18	8°♊20'14	38.59470 AU	conjunction	-3870 Jan 08 j 11:06	19°♊39'20	-12°-37'-25
opposition	-3879 Jul 02 j 10:32	8°♊15'54	-10°-41'-14	minimum elong	-3870 Jan 08 j 10:55	19°♊39'19	12°37'37
direct	-3879 Sep 20 j 21:21	7°♊08'11		max. Earth dist.	-3870 Jan 11 j 16:39	19°♊44'37	42.57451 AU
				retrograde	-3870 Apr 22 j 10:56	21°♊26'54	
conjunction	-3879 Dec 28 j 18:53	8°♊56'03	-10°-19'-24	min. Earth dist.	-3870 Jul 11 j 19:44	20°♊23'28	40.73836 AU
minimum elong	-3879 Dec 28 j 18:40	8°♊56'02	10°19'34	opposition	-3870 Jul 14 j 23:50	20°♊19'27	-13°-22'-20
max. Earth dist.	-3878 Jan 01 j 03:07	9°♊01'47	40.68499 AU	direct	-3870 Oct 03 j 08:45	19°♊13'52	
retrograde	-3878 Apr 11 j 16:53	10°♊48'29					
min. Earth dist.	-3878 Jun 30 j 18:22	9°♊43'34	38.84317 AU	conjunction	-3869 Jan 09 j 23:56	20°♊56'13	-12°-52'-16
opposition	-3878 Jul 04 j 02:37	9°♊39'11	-11°-1'-30	minimum elong	-3869 Jan 09 j 23:45	20°♊56'12	12°52'26
direct	-3878 Sep 22 j 12:46	8°♊31'45		max. Earth dist.	-3869 Jan 13 j 06:05	21°♊01'31	42.79751 AU
				retrograde	-3869 Apr 23 j 21:35	22°♊43'12	
conjunction	-3878 Dec 30 j 09:46	10°♊18'59	-10°-38'-35	min. Earth dist.	-3869 Jul 13 j 09:19	21°♊39'55	40.96232 AU
minimum elong	-3878 Dec 30 j 09:32	10°♊18'58	10°38'46	opposition	-3869 Jul 16 j 12:51	21°♊35'57	-13°-37'-24
max. Earth dist.	-3877 Jan 02 j 18:20	10°♊24'41	40.93062 AU	direct	-3869 Oct 04 j 23:56	20°♊30'33	
retrograde	-3877 Apr 13 j 10:29	12°♊10'47					
min. Earth dist.	-3877 Jul 02 j 11:04	11°♊06'04	39.09027 AU	conjunction	-3868 Jan 11 j 12:23	22°♊12'21	-13°-6'-35
opposition	-3877 Jul 05 j 18:25	11°♊01'46	-11°-21'-8	minimum elong	-3868 Jan 11 j 12:11	22°♊12'20	13°06'46
direct	-3877 Sep 24 j 01:40	9°♊54'38		max. Earth dist.	-3868 Jan 14 j 17:14	22°♊17'32	43.01866 AU



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 3

Attention, astronomical year style is used: The year -3868 in astronomical counting style is the year 3869 BCE in historical counting style.

retrograde	-3868 Apr 24 j 09:01	23°♂58'46		minimum elong	-3860 Jan 21 j 08:53	2°♂01'01	14°43'23
min. Earth dist.	-3868 Jul 13 j 21:41	22°♂55'42	41.18462 AU	max. Earth dist.	-3860 Jan 24 j 09:32	2°♂05'44	44.69696 AU
opposition	-3868 Jul 17 j 01:42	22°♂51'43	-13°-51'-54	retrograde	-3860 May 04 j 04:17	3°♂43'40	
direct	-3868 Oct 05 j 13:34	21°♂46'31		min. Earth dist.	-3860 Jul 24 j 02:02	2°♂41'50	42.86373 AU
				opposition	-3860 Jul 26 j 23:22	2°♂38'16	-15°-29'-24
conjunction	-3867 Jan 12 j 00:34	23°♂27'47	-13°-20'-22	direct	-3860 Oct 15 j 13:10	1°♂34'40	
minimum elong	-3867 Jan 12 j 00:24	23°♂27'47	13°20'32				
max. Earth dist.	-3867 Jan 15 j 06:13	23°♂33'00	43.23810 AU	conjunction	-3859 Jan 21 j 19:45	3°♂12'17	-14°-53'-16
retrograde	-3867 Apr 25 j 19:35	25°♂13'42		minimum elong	-3859 Jan 21 j 19:38	3°♂12'16	14°53'27
min. Earth dist.	-3867 Jul 15 j 11:39	24°♂10'45	41.40508 AU	max. Earth dist.	-3859 Jan 24 j 19:54	3°♂16'57	44.88946 AU
opposition	-3867 Jul 18 j 14:21	24°♂06'50	-14°-5'-51	retrograde	-3859 May 05 j 14:55	4°♂54'27	
direct	-3867 Oct 07 j 03:45	23°♂01'51		min. Earth dist.	-3859 Jul 25 j 12:59	3°♂52'45	43.05571 AU
				opposition	-3859 Jul 28 j 09:55	3°♂49'13	-15°-39'-29
conjunction	-3866 Jan 13 j 12:42	24°♂42'37	-13°-33'-38	direct	-3859 Oct 16 j 23:51	2°♂45'45	
minimum elong	-3866 Jan 13 j 12:31	24°♂42'36	13°33'49				
max. Earth dist.	-3866 Jan 16 j 17:34	24°♂47'45	43.45578 AU	conjunction	-3858 Jan 23 j 06:12	4°♂22'56	-15°-2'-53
retrograde	-3866 Apr 27 j 07:33	26°♂28'01		minimum elong	-3858 Jan 23 j 06:04	4°♂22'55	15°03'03
min. Earth dist.	-3866 Jul 16 j 23:13	25°♂25'19	41.62351 AU	max. Earth dist.	-3858 Jan 26 j 04:39	4°♂27'28	45.07817 AU
opposition	-3866 Jul 20 j 02:27	25°♂21'23	-14°-19'-16	retrograde	-3858 May 07 j 02:55	6°♂04'38	
direct	-3866 Oct 08 j 16:05	24°♂16'36		min. Earth dist.	-3858 Jul 26 j 23:52	5°♂03'02	43.24439 AU
				opposition	-3858 Jul 29 j 20:10	4°♂59'33	-15°-49'-7
conjunction	-3865 Jan 15 j 00:28	25°♂56'53	-13°-46'-24	direct	-3858 Oct 18 j 08:14	3°♂56'13	
minimum elong	-3865 Jan 15 j 00:19	25°♂56'53	13°46'34				
max. Earth dist.	-3865 Jan 18 j 04:48	26°♂01'58	43.67119 AU	conjunction	-3857 Jan 24 j 16:30	5°♂33'00	-15°-12'-3
retrograde	-3865 Apr 28 j 21:37	27°♂41'49		minimum elong	-3857 Jan 24 j 16:24	5°♂32'59	15°12'15
min. Earth dist.	-3865 Jul 18 j 12:30	26°♂39'16	41.83957 AU	max. Earth dist.	-3857 Jan 27 j 15:29	5°♂37'33	45.26385 AU
opposition	-3865 Jul 21 j 14:36	26°♂35'24	-14°-32'-9	retrograde	-3857 May 08 j 11:18	7°♂14'15	
direct	-3865 Oct 10 j 02:14	25°♂30'51		min. Earth dist.	-3857 Jul 28 j 11:17	6°♂12'44	43.43014 AU
				opposition	-3857 Jul 31 j 06:15	6°♂09'19	-15°-58'-17
conjunction	-3864 Jan 16 j 12:03	27°♂10'40	-13°-58'-40	direct	-3857 Oct 19 j 19:53	5°♂06'08	
minimum elong	-3864 Jan 16 j 11:53	27°♂10'40	13°58'51				
max. Earth dist.	-3864 Jan 19 j 16:36	27°♂15'44	43.88404 AU	conjunction	-3856 Jan 26 j 02:21	6°♂42'29	-15°-20'-47
retrograde	-3864 Apr 29 j 09:42	28°♂55'07		minimum elong	-3856 Jan 26 j 02:15	6°♂42'29	15°20'57
min. Earth dist.	-3864 Jul 19 j 00:57	27°♂52'45	42.05254 AU	max. Earth dist.	-3856 Jan 29 j 00:01	6°♂46'56	45.44702 AU
opposition	-3864 Jul 22 j 02:24	27°♂48'57	-14°-44'-32	retrograde	-3856 May 08 j 18:54	8°♂23'20	
direct	-3864 Oct 10 j 13:25	26°♂44'36		min. Earth dist.	-3856 Jul 28 j 20:37	7°♂21'59	43.61353 AU
				opposition	-3856 Jul 31 j 16:08	7°♂18'33	-16°-7'00
conjunction	-3863 Jan 16 j 23:30	28°♂23'59	-14°-10'-29	direct	-3856 Oct 20 j 07:12	6°♂15'30	
minimum elong	-3863 Jan 16 j 23:22	28°♂23'59	14°10'39				
max. Earth dist.	-3863 Jan 20 j 02:25	28°♂28'55	44.09356 AU	conjunction	-3855 Jan 26 j 12:11	7°♂51'28	-15°-29'-5
	-3863 Apr 04 j 14:21	0°♂		minimum elong	-3855 Jan 26 j 12:05	7°♂51'27	15°29'16
retrograde	-3863 Apr 30 j 22:07	0°♂07'59		max. Earth dist.	-3855 Jan 29 j 09:46	7°♂55'54	45.62786 AU
	-3863 May 27 j 08:35	30°♂		retrograde	-3855 May 10 j 03:38	9°♂31'54	
min. Earth dist.	-3863 Jul 20 j 12:54	29°♂05'48	42.26200 AU	min. Earth dist.	-3855 Jul 30 j 07:50	8°♂30'38	43.79463 AU
opposition	-3863 Jul 23 j 13:57	29°♂02'02	-14°-56'-26	opposition	-3855 Aug 02 j 01:47	8°♂27'17	-16°-15'-15
direct	-3863 Oct 12 j 00:08	27°♂57'53		direct	-3855 Oct 21 j 18:40	7°♂24'24	
conjunction	-3862 Jan 18 j 10:57	29°♂36'50	-14°-21'-50	conjunction	-3854 Jan 27 j 21:58	8°♂59'59	-15°-36'-57
minimum elong	-3862 Jan 18 j 10:48	29°♂36'50	14°22'00	minimum elong	-3854 Jan 27 j 21:53	8°♂59'59	15°37'06
max. Earth dist.	-3862 Jan 21 j 13:57	29°♂41'46	44.29915 AU	max. Earth dist.	-3854 Jan 30 j 19:08	9°♂04'22	45.80658 AU
	-3862 Feb 02 j 06:57	0°♂		retrograde	-3854 May 11 j 14:28	10°♂40'02	
retrograde	-3862 May 02 j 06:05	1°♂20'23		min. Earth dist.	-3854 Jul 31 j 17:10	9°♂38'55	43.97329 AU
min. Earth dist.	-3862 Jul 22 j 02:10	0°♂18'18	42.46710 AU	opposition	-3854 Aug 03 j 11:10	9°♂35'35	-16°-23'-3
opposition	-3862 Jul 25 j 01:21	0°♂14'38	-15°-7'-53	direct	-3854 Oct 23 j 03:21	8°♂32'51	
	-3862 Aug 05 j 23:16	30°♂					
direct	-3862 Oct 13 j 14:37	29°♂10'42		conjunction	-3853 Jan 29 j 07:19	10°♂08'05	-15°-44'-23
	-3862 Dec 18 j 02:13	0°♂		minimum elong	-3853 Jan 29 j 07:14	10°♂08'05	15°44'34
				max. Earth dist.	-3853 Feb 01 j 03:14	10°♂12'22	45.98271 AU
conjunction	-3861 Jan 19 j 22:07	0°♂49'12	-14°-32'-44	retrograde	-3853 May 13 j 01:51	11°♂47'45	
minimum elong	-3861 Jan 19 j 22:00	0°♂49'11	14°32'55	min. Earth dist.	-3853 Aug 02 j 03:20	10°♂46'46	44.14933 AU
max. Earth dist.	-3861 Jan 22 j 23:22	0°♂53'59	44.50035 AU	opposition	-3853 Aug 04 j 20:27	10°♂43'29	-16°-30'-25
retrograde	-3861 May 03 j 16:18	2°♂32'17		direct	-3853 Oct 24 j 10:22	9°♂40'55	
min. Earth dist.	-3861 Jul 23 j 13:13	1°♂30'23	42.66762 AU				
opposition	-3861 Jul 26 j 12:23	1°♂26'44	-15°-18'-52	conjunction	-3852 Jan 30 j 16:46	11°♂15'48	-15°-51'-24
direct	-3861 Oct 15 j 02:52	0°♂22'58		minimum elong	-3852 Jan 30 j 16:42	11°♂15'48	15°51'35
				max. Earth dist.	-3852 Feb 02 j 12:59	11°♂20'05	46.15608 AU
conjunction	-3860 Jan 21 j 09:02	2°♂01'02	-14°-43'-13	retrograde	-3852 May 13 j 10:06	12°♂55'06	



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 4
























































































































Attention, astronomical year style is used: The year -3852 in astronomical counting style is the year 3853 BCE in historical counting style.

min. Earth dist.	-3852 Aug 02 j 13:38	11° $\overline{3}$ 54'14	44.32214 AU	conjunction	-3843 Feb 08 j 23:28	21° $\overline{3}$ 07'40	-16°-38'-7
opposition	-3852 Aug 05 j 05:31	11° $\overline{3}$ 51'01	-16°-37'-22	minimum elong	-3843 Feb 08 j 23:27	21° $\overline{3}$ 07'40	16°38'16
direct	-3852 Oct 24 j 20:16	10° $\overline{3}$ 48'37		max. Earth dist.	-3843 Feb 11 j 09:48	21° $\overline{3}$ 11'14	47.53026 AU
				retrograde	-3843 May 23 j 12:22	22° $\overline{3}$ 43'53	
conjunction	-3851 Jan 31 j 02:02	12° $\overline{3}$ 23'10	-15°-58'-2	min. Earth dist.	-3843 Aug 13 j 00:45	21° $\overline{3}$ 43'46	45.68650 AU
minimum elong	-3851 Jan 31 j 01:57	12° $\overline{3}$ 23'10	15°58'13	opposition	-3843 Aug 15 j 07:36	21° $\overline{3}$ 41'03	-17°-23'-2
max. Earth dist.	-3851 Feb 02 j 20:18	12° $\overline{3}$ 27'20	46.32604 AU	direct	-3843 Nov 04 j 02:25	20° $\overline{3}$ 39'44	
retrograde	-3851 May 14 j 18:27	14° $\overline{3}$ 02'07					
min. Earth dist.	-3851 Aug 03 j 22:49	13° $\overline{3}$ 01'23	44.49119 AU	conjunction	-3842 Feb 10 j 07:36	22° $\overline{3}$ 11'31	-16°-41'-30
opposition	-3851 Aug 06 j 14:25	12° $\overline{3}$ 58'12	-16°-43'-55	minimum elong	-3842 Feb 10 j 07:37	22° $\overline{3}$ 11'31	16°41'40
direct	-3851 Oct 26 j 05:53	11° $\overline{3}$ 55'57		max. Earth dist.	-3842 Feb 12 j 18:05	22° $\overline{3}$ 15'04	47.66552 AU
				retrograde	-3842 May 24 j 20:24	23° $\overline{3}$ 47'26	
conjunction	-3850 Feb 01 j 11:19	13° $\overline{3}$ 30'11	-16°-4'-17	min. Earth dist.	-3842 Aug 14 j 08:47	22° $\overline{3}$ 47'25	45.82085 AU
minimum elong	-3850 Feb 01 j 11:17	13° $\overline{3}$ 30'11	16°04'27	opposition	-3842 Aug 16 j 14:51	22° $\overline{3}$ 44'45	-17°-26'-15
max. Earth dist.	-3850 Feb 04 j 05:08	13° $\overline{3}$ 34'18	46.49178 AU	direct	-3842 Nov 05 j 09:33	21° $\overline{3}$ 43'33	
retrograde	-3850 May 16 j 01:57	15° $\overline{3}$ 08'47					
min. Earth dist.	-3850 Aug 05 j 09:47	14° $\overline{3}$ 08'06	44.65572 AU	conjunction	-3841 Feb 11 j 15:26	23° $\overline{3}$ 15'06	-16°-44'-31
opposition	-3850 Aug 07 j 23:09	14° $\overline{3}$ 05'02	-16°-50'-6	minimum elong	-3841 Feb 11 j 15:27	23° $\overline{3}$ 15'06	16°44'41
direct	-3850 Oct 27 j 16:15	13° $\overline{3}$ 02'55		max. Earth dist.	-3841 Feb 13 j 23:59	23° $\overline{3}$ 18'32	47.79801 AU
				retrograde	-3841 May 26 j 04:55	24° $\overline{3}$ 50'45	
conjunction	-3849 Feb 02 j 20:31	14° $\overline{3}$ 36'49	-16°-10'-11	min. Earth dist.	-3841 Aug 15 j 16:22	23° $\overline{3}$ 50'52	45.95235 AU
minimum elong	-3849 Feb 02 j 20:27	14° $\overline{3}$ 36'49	16°10'21	opposition	-3841 Aug 17 j 22:10	23° $\overline{3}$ 48'14	-17°-29'-5
max. Earth dist.	-3849 Feb 05 j 13:04	14° $\overline{3}$ 40'51	46.65296 AU	direct	-3841 Nov 06 j 15:31	22° $\overline{3}$ 47'10	
retrograde	-3849 May 17 j 10:16	16° $\overline{3}$ 15'04					
min. Earth dist.	-3849 Aug 06 j 18:41	15° $\overline{3}$ 14'31	44.81534 AU	conjunction	-3840 Feb 12 j 23:08	24° $\overline{3}$ 18'29	-16°-47'-12
opposition	-3849 Aug 09 j 07:43	15° $\overline{3}$ 11'28	-16°-55'-54	minimum elong	-3840 Feb 12 j 23:09	24° $\overline{3}$ 18'30	16°47'23
direct	-3849 Oct 29 j 01:54	14° $\overline{3}$ 09'29		max. Earth dist.	-3840 Feb 15 j 07:43	24° $\overline{3}$ 21'54	47.92733 AU
				retrograde	-3840 May 26 j 10:49	25° $\overline{3}$ 53'53	
conjunction	-3848 Feb 04 j 05:16	15° $\overline{3}$ 43'03	-16°-15'-44	min. Earth dist.	-3840 Aug 16 j 01:38	24° $\overline{3}$ 54'03	46.08034 AU
minimum elong	-3848 Feb 04 j 05:14	15° $\overline{3}$ 43'03	16°15'54	opposition	-3840 Aug 18 j 05:25	24° $\overline{3}$ 51'31	-17°-31'-35
max. Earth dist.	-3848 Feb 06 j 20:01	15° $\overline{3}$ 46'57	46.80916 AU	direct	-3840 Nov 07 j 00:03	23° $\overline{3}$ 50'35	
retrograde	-3848 May 17 j 21:33	17° $\overline{3}$ 20'56					
min. Earth dist.	-3848 Aug 07 j 04:49	16° $\overline{3}$ 20'26	44.97012 AU	conjunction	-3839 Feb 13 j 06:59	25° $\overline{3}$ 21'41	-16°-49'-33
opposition	-3848 Aug 09 j 16:18	16° $\overline{3}$ 17'28	-17°-1'-21	minimum elong	-3839 Feb 13 j 07:01	25° $\overline{3}$ 21'42	16°49'43
direct	-3848 Oct 29 j 08:30	15° $\overline{3}$ 15'36		max. Earth dist.	-3839 Feb 15 j 14:10	25° $\overline{3}$ 25'01	48.05304 AU
				retrograde	-3839 May 27 j 16:33	26° $\overline{3}$ 56'50	
conjunction	-3847 Feb 04 j 14:10	16° $\overline{3}$ 48'51	-16°-20'-55	min. Earth dist.	-3839 Aug 17 j 08:44	25° $\overline{3}$ 57'09	46.20425 AU
minimum elong	-3847 Feb 04 j 14:07	16° $\overline{3}$ 48'51	16°21'05	opposition	-3839 Aug 19 j 12:18	25° $\overline{3}$ 54'37	-17°-33'-45
max. Earth dist.	-3847 Feb 07 j 04:47	16° $\overline{3}$ 52'43	46.96072 AU	direct	-3839 Nov 08 j 09:11	24° $\overline{3}$ 53'49	
retrograde	-3847 May 19 j 05:55	18° $\overline{3}$ 26'22					
min. Earth dist.	-3847 Aug 08 j 14:20	17° $\overline{3}$ 25'54	45.12027 AU	conjunction	-3838 Feb 14 j 14:43	26° $\overline{3}$ 24'43	-16°-51'-36
opposition	-3847 Aug 11 j 00:25	17° $\overline{3}$ 23'01	-17°-6'-26	minimum elong	-3838 Feb 14 j 14:44	26° $\overline{3}$ 24'43	16°51'46
direct	-3847 Oct 30 j 16:48	16° $\overline{3}$ 21'15		max. Earth dist.	-3838 Feb 16 j 20:08	26° $\overline{3}$ 27'55	48.17423 AU
				retrograde	-3838 May 29 j 01:48	27° $\overline{3}$ 59'37	
conjunction	-3846 Feb 05 j 22:46	17° $\overline{3}$ 54'11	-16°-25'-46	min. Earth dist.	-3838 Aug 18 j 17:51	26° $\overline{3}$ 59'57	46.32341 AU
minimum elong	-3846 Feb 05 j 22:45	17° $\overline{3}$ 54'10	16°25'56	opposition	-3838 Aug 20 j 19:20	26° $\overline{3}$ 57'32	-17°-35'-36
max. Earth dist.	-3846 Feb 08 j 11:23	17° $\overline{3}$ 57'54	47.10807 AU	direct	-3838 Nov 09 j 15:44	25° $\overline{3}$ 56'51	
retrograde	-3846 May 20 j 13:55	19° $\overline{3}$ 31'20					
min. Earth dist.	-3846 Aug 09 j 22:38	18° $\overline{3}$ 30'59	45.26654 AU	conjunction	-3837 Feb 15 j 22:23	27° $\overline{3}$ 27'31	-16°-53'-20
opposition	-3846 Aug 12 j 08:27	18° $\overline{3}$ 28'07	-17°-11'-9	minimum elong	-3837 Feb 15 j 22:26	27° $\overline{3}$ 27'31	16°53'30
direct	-3846 Nov 01 j 00:47	17° $\overline{3}$ 26'27		max. Earth dist.	-3837 Feb 18 j 03:18	27° $\overline{3}$ 30'41	48.29047 AU
				retrograde	-3837 May 30 j 10:40	29° $\overline{3}$ 02'10	
conjunction	-3845 Feb 07 j 07:06	18° $\overline{3}$ 59'03	-16°-30'-15	min. Earth dist.	-3837 Aug 20 j 01:51	28° $\overline{3}$ 02'34	46.43720 AU
minimum elong	-3845 Feb 07 j 07:04	18° $\overline{3}$ 59'03	16°30'25	opposition	-3837 Aug 22 j 02:09	28° $\overline{3}$ 00'13	-17°-37'-9
max. Earth dist.	-3845 Feb 09 j 19:33	19° $\overline{3}$ 02'46	47.25170 AU	direct	-3837 Nov 10 j 21:10	26° $\overline{3}$ 59'37	
retrograde	-3845 May 21 j 18:54	20° $\overline{3}$ 35'53					
min. Earth dist.	-3845 Aug 11 j 08:18	19° $\overline{3}$ 35'34	45.40936 AU	conjunction	-3836 Feb 17 j 05:55	28° $\overline{3}$ 30'03	-16°-54'-48
opposition	-3845 Aug 13 j 16:21	19° $\overline{3}$ 32'47	-17°-15'-30	minimum elong	-3836 Feb 17 j 05:56	28° $\overline{3}$ 30'04	16°54'57
direct	-3845 Nov 02 j 11:51	18° $\overline{3}$ 31'13		max. Earth dist.	-3836 Feb 19 j 08:19	28° $\overline{3}$ 33'04	48.40141 AU
					-3836 May 10 j 09:37	0° $\approx$	
conjunction	-3844 Feb 08 j 15:24	20° $\overline{3}$ 03'32	-16°-34'-22	retrograde	-3836 May 30 j 19:36	0° $\approx$ 04'26	
minimum elong	-3844 Feb 08 j 15:24	20° $\overline{3}$ 03'32	16°34'32		-3836 Jun 20 j 01:36	30° $\overline{R}$ 3	
max. Earth dist.	-3844 Feb 11 j 02:57	20° $\overline{3}$ 07'11	47.39240 AU	min. Earth dist.	-3836 Aug 20 j 09:34	29° $\overline{3}$ 04'53	46.54579 AU
retrograde	-3844 May 22 j 02:23	21° $\overline{3}$ 40'03		opposition	-3836 Aug 22 j 08:52	29° $\overline{3}$ 02'35	-17°-38'-25
min. Earth dist.	-3844 Aug 11 j 15:47	20° $\overline{3}$ 39'52	45.54927 AU	direct	-3836 Nov 11 j 02:21	28° $\overline{3}$ 02'03	
opposition	-3844 Aug 13 j 23:57	20° $\overline{3}$ 37'05	-17°-19'-27				
direct	-3844 Nov 02 j 20:37	19° $\overline{3}$ 35'38		conjunction	-3835 Feb 17 j 13:25	29° $\overline{3}$ 32'16	-16°-55'-58



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 5

Attention, astronomical year style is used: The year -3835 in astronomical counting style is the year 3836 BCE in historical counting style.

minimum elong	-3835 Feb 17 j 13:28	29°  32'16	16°56'07	minimum elong	-3827 Feb 25 j 21:02	7°  38'22	16°54'32
max. Earth dist.	-3835 Feb 19 j 15:16	29°  35'14	48.50717 AU	max. Earth dist.	-3827 Feb 27 j 14:37	7°  40'48	49.21911 AU
	-3835 Mar 09 j 05:52	0° 		retrograde	-3827 Jun 09 j 02:08	9°  10'40	
retrograde	-3835 May 31 j 23:28	1°  06'22		min. Earth dist.	-3827 Aug 30 j 02:01	8°  11'26	47.34659 AU
min. Earth dist.	-3835 Aug 21 j 18:17	0°  06'47	46.64924 AU	opposition	-3827 Aug 31 j 15:27	8°  09'38	-17°-35'-49
opposition	-3835 Aug 23 j 15:28	0°  04'35	-17°-39'-23	direct	-3827 Nov 20 j 15:57	7°  09'44	
	-3835 Aug 27 j 13:49	30° 					
direct	-3835 Nov 12 j 11:45	29°  04'08		conjunction	-3826 Feb 27 j 03:36	8°  38'17	-16°-52'-50
	-3834 Jan 25 j 08:44	0° 		minimum elong	-3826 Feb 27 j 03:43	8°  38'18	16°52'58
				max. Earth dist.	-3826 Feb 28 j 18:49	8°  40'35	49.29228 AU
conjunction	-3834 Feb 18 j 20:48	0°  34'06	-16°-56'-50	retrograde	-3826 Jun 10 j 11:09	10°  10'25	
minimum elong	-3834 Feb 18 j 20:50	0°  34'06	16°56'59	min. Earth dist.	-3826 Aug 31 j 08:48	9°  11'15	47.41713 AU
max. Earth dist.	-3834 Feb 20 j 20:58	0°  36'58	48.60823 AU	opposition	-3826 Sep 01 j 21:01	9°  09'30	-17°-34'-1
retrograde	-3834 Jun 02 j 03:38	2°  07'55		direct	-3826 Nov 21 j 19:00	8°  09'42	
min. Earth dist.	-3834 Aug 23 j 00:48	1°  08'24	46.74821 AU				
opposition	-3834 Aug 24 j 21:42	1°  06'13	-17°-40'-3	conjunction	-3825 Feb 28 j 10:20	9°  38'07	-16°-51'-2
direct	-3834 Nov 13 j 20:41	0°  05'49		minimum elong	-3825 Feb 28 j 10:25	9°  38'08	16°51'11
				max. Earth dist.	-3825 Mar 02 j 00:55	9°  40'22	49.36052 AU
conjunction	-3833 Feb 20 j 03:54	1°  35'33	-16°-57'-25	retrograde	-3825 Jun 11 j 15:55	11°  10'05	
minimum elong	-3833 Feb 20 j 03:59	1°  35'34	16°57'34	min. Earth dist.	-3825 Sep 01 j 16:30	10°  10'54	47.48242 AU
max. Earth dist.	-3833 Feb 22 j 02:47	1°  38'20	48.70508 AU	opposition	-3825 Sep 03 j 02:39	10°  09'15	-17°-31'-57
retrograde	-3833 Jun 03 j 10:42	3°  09'07		direct	-3825 Nov 23 j 01:51	9°  09'31	
min. Earth dist.	-3833 Aug 24 j 09:00	2°  09'35	46.84338 AU				
opposition	-3833 Aug 26 j 04:04	2°  07'30	-17°-40'-24	conjunction	-3824 Feb 29 j 16:51	10°  37'48	-16°-48'-59
direct	-3833 Nov 15 j 03:41	1°  07'08		minimum elong	-3824 Feb 29 j 16:58	10°  37'49	16°49'07
				max. Earth dist.	-3824 Mar 02 j 05:28	10°  39'56	49.42362 AU
conjunction	-3832 Feb 21 j 10:55	2°  36'39	-16°-57'-41	retrograde	-3824 Jun 11 j 19:51	12°  09'36	
minimum elong	-3832 Feb 21 j 10:58	2°  36'39	16°57'49	min. Earth dist.	-3824 Sep 01 j 22:29	11°  10'28	47.54243 AU
max. Earth dist.	-3832 Feb 23 j 09:36	2°  39'25	48.79847 AU	opposition	-3824 Sep 03 j 08:08	11°  08'51	-17°-29'-38
retrograde	-3832 Jun 03 j 17:14	4°  09'58		direct	-3824 Nov 23 j 09:35	10°  09'09	
min. Earth dist.	-3832 Aug 24 j 15:39	3°  10'29	46.93509 AU				
opposition	-3832 Aug 26 j 10:12	3°  08'25	-17°-40'-25	conjunction	-3823 Mar 01 j 23:23	11°  37'19	-16°-46'-41
direct	-3832 Nov 15 j 10:27	2°  08'07		minimum elong	-3823 Mar 01 j 23:29	11°  37'19	16°46'50
				max. Earth dist.	-3823 Mar 03 j 10:19	11°  39'21	49.48143 AU
conjunction	-3831 Feb 21 j 17:51	3°  37'26	-16°-57'-38	retrograde	-3823 Jun 13 j 01:16	13°  08'56	
minimum elong	-3831 Feb 21 j 17:55	3°  37'26	16°57'47	min. Earth dist.	-3823 Sep 03 j 06:12	12°  09'45	47.59740 AU
max. Earth dist.	-3831 Feb 23 j 14:31	3°  40'04	48.88869 AU	opposition	-3823 Sep 04 j 13:29	12°  08'15	-17°-27'-4
retrograde	-3831 Jun 05 j 02:17	5°  10'30		direct	-3823 Nov 24 j 16:32	11°  08'35	
min. Earth dist.	-3831 Aug 25 j 22:20	4°  11'04	47.02384 AU				
opposition	-3831 Aug 27 j 16:10	4°  09'02	-17°-40'-8	conjunction	-3822 Mar 03 j 05:55	12°  36'36	-16°-44'-8
direct	-3831 Nov 16 j 13:56	3°  08'48		minimum elong	-3822 Mar 03 j 06:03	12°  36'37	16°44'16
				max. Earth dist.	-3822 Mar 04 j 16:13	12°  38'35	49.53456 AU
conjunction	-3830 Feb 23 j 00:48	4°  37'56	-16°-57'-16	retrograde	-3822 Jun 14 j 06:44	14°  08'03	
minimum elong	-3830 Feb 23 j 00:52	4°  37'57	16°57'25	opposition	-3822 Sep 05 j 18:43	13°  07'25	-17°-24'-13
max. Earth dist.	-3830 Feb 24 j 21:28	4°  40'34	48.97596 AU	min. Earth dist.	-3822 Sep 04 j 12:02	13°  08'53	47.64778 AU
retrograde	-3830 Jun 06 j 08:11	6°  10'47		direct	-3822 Nov 25 j 22:52	12°  07'47	
min. Earth dist.	-3830 Aug 27 j 05:59	5°  11'21	47.10954 AU				
opposition	-3830 Aug 28 j 22:10	5°  09'25	-17°-39'-31	conjunction	-3821 Mar 04 j 12:00	13°  35'40	-16°-41'-19
direct	-3830 Nov 17 j 20:30	4°  09'16		minimum elong	-3821 Mar 04 j 12:07	13°  35'40	16°41'27
				max. Earth dist.	-3821 Mar 05 j 20:05	13°  37'31	49.58345 AU
conjunction	-3829 Feb 24 j 07:27	5°  38'13	-16°-56'-36		-3821 May 20 j 21:12	15° 	
minimum elong	-3829 Feb 24 j 07:32	5°  38'14	16°56'46	retrograde	-3821 Jun 15 j 15:43	15°  06'56	
max. Earth dist.	-3829 Feb 26 j 02:47	5°  40'46	49.06036 AU		-3821 Jul 11 j 09:12	15° 	
retrograde	-3829 Jun 07 j 12:29	7°  10'52		opposition	-3821 Sep 06 j 23:54	14°  06'22	-17°-21'-6
min. Earth dist.	-3829 Aug 28 j 11:43	6°  11'33	47.19219 AU	min. Earth dist.	-3821 Sep 05 j 18:19	14°  07'47	47.69436 AU
opposition	-3829 Aug 30 j 03:59	6°  09'36	-17°-38'-35	direct	-3821 Nov 27 j 01:12	13°  06'45	
direct	-3829 Nov 19 j 03:50	5°  09'32					
				conjunction	-3820 Mar 04 j 18:17	14°  34'31	-16°-38'-13
conjunction	-3828 Feb 25 j 14:07	6°  38'21	-16°-55'-38	minimum elong	-3820 Mar 04 j 18:25	14°  34'31	16°38'21
minimum elong	-3828 Feb 25 j 14:13	6°  38'21	16°55'47	max. Earth dist.	-3820 Mar 06 j 02:20	14°  36'22	49.62876 AU
max. Earth dist.	-3828 Feb 27 j 08:10	6°  40'49	49.14152 AU		-3820 Mar 23 j 09:37	15° 	
retrograde	-3828 Jun 07 j 18:38	8°  10'49		retrograde	-3820 Jun 15 j 21:46	16°  05'37	
min. Earth dist.	-3828 Aug 28 j 19:28	7°  11'31	47.27145 AU	min. Earth dist.	-3820 Sep 06 j 00:58	15°  06'25	47.73749 AU
opposition	-3828 Aug 30 j 09:48	7°  09'40	-17°-37'-21	opposition	-3820 Sep 07 j 04:57	15°  05'05	-17°-17'-42
direct	-3828 Nov 19 j 10:46	6°  09'41			-3820 Sep 11 j 15:14	15° 	
				direct	-3820 Nov 27 j 06:05	14°  05'30	
conjunction	-3827 Feb 25 j 20:56	7°  38'22	-16°-54'-22		-3819 Feb 09 j 11:02	15° 	



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 6

Attention, astronomical year style is used: The year -3819 in astronomical counting style is the year 3820 BCE in historical counting style.

conjunction	-3819 Mar 06 j 00:28	15°≈33'10	-16°-34'-50	retrograde	-3811 Jun 24 j 22:10	24°≈49'01	
minimum elong	-3819 Mar 06 j 00:36	15°≈33'10	16°34'58	min. Earth dist.	-3811 Sep 15 j 07:02	23°≈49'52	47.96649 AU
max. Earth dist.	-3819 Mar 07 j 06:54	15°≈34'55	49.67104 AU	opposition	-3811 Sep 16 j 00:33	23°≈49'02	-16°-34'-38
retrograde	-3819 Jun 17 j 01:56	17°≈04'06		direct	-3811 Dec 06 j 06:36	22°≈49'44	
min. Earth dist.	-3819 Sep 07 j 05:53	16°≈04'58	47.77766 AU				
opposition	-3819 Sep 08 j 09:55	16°≈03'38	-17°-14'00	conjunction	-3810 Mar 15 j 07:08	24°≈16'46	-15°-52'-29
direct	-3819 Nov 28 j 11:48	15°≈04'05		minimum elong	-3810 Mar 15 j 07:17	24°≈16'47	15°52'36
				max. Earth dist.	-3810 Mar 16 j 02:02	24°≈17'51	49.88847 AU
conjunction	-3818 Mar 07 j 06:33	16°≈31'38	-16°-31'-10	retrograde	-3810 Jun 26 j 04:09	25°≈46'44	
minimum elong	-3818 Mar 07 j 06:42	16°≈31'39	16°31'18	opposition	-3810 Sep 17 j 05:09	24°≈46'46	-16°-28'-36
max. Earth dist.	-3818 Mar 08 j 11:50	16°≈33'20	49.71031 AU	min. Earth dist.	-3810 Sep 16 j 13:25	24°≈47'31	47.96851 AU
retrograde	-3818 Jun 18 j 05:02	18°≈02'27		direct	-3810 Dec 07 j 10:57	23°≈47'28	
opposition	-3818 Sep 09 j 14:54	17°≈02'02	-17°-10'00				
min. Earth dist.	-3818 Sep 08 j 12:43	17°≈03'18	47.81493 AU	conjunction	-3809 Mar 16 j 13:01	25°≈14'27	-15°-46'-34
direct	-3818 Nov 29 j 19:48	16°≈02'32		minimum elong	-3809 Mar 16 j 13:12	25°≈14'27	15°46'42
				max. Earth dist.	-3809 Mar 17 j 06:03	25°≈15'25	49.88946 AU
conjunction	-3817 Mar 08 j 12:41	17°≈30'00	-16°-27'-14	retrograde	-3809 Jun 27 j 09:34	26°≈44'18	
minimum elong	-3817 Mar 08 j 12:49	17°≈30'00	16°27'21	opposition	-3809 Sep 18 j 09:40	25°≈44'21	-16°-22'-19
max. Earth dist.	-3817 Mar 09 j 17:44	17°≈31'40	49.74690 AU	min. Earth dist.	-3809 Sep 17 j 18:11	25°≈45'05	47.96649 AU
retrograde	-3817 Jun 19 j 10:27	19°≈00'41		direct	-3809 Dec 08 j 15:15	24°≈45'03	
opposition	-3817 Sep 10 j 19:46	18°≈00'21	-17°-5'-44				
min. Earth dist.	-3817 Sep 09 j 17:55	18°≈01'35	47.84925 AU	conjunction	-3808 Mar 16 j 18:47	26°≈11'59	-15°-40'-25
direct	-3817 Dec 01 j 01:53	17°≈00'54		minimum elong	-3808 Mar 16 j 18:57	26°≈12'00	15°40'31
				max. Earth dist.	-3808 Mar 17 j 10:30	26°≈12'53	49.88651 AU
conjunction	-3816 Mar 08 j 18:33	18°≈28'17	-16°-23'00	retrograde	-3808 Jun 27 j 12:25	27°≈41'46	
minimum elong	-3816 Mar 08 j 18:42	18°≈28'17	16°23'08	opposition	-3808 Sep 18 j 14:17	26°≈41'50	-16°-15'-47
max. Earth dist.	-3816 Mar 09 j 21:30	18°≈29'50	49.78044 AU	min. Earth dist.	-3808 Sep 18 j 00:53	26°≈42'29	47.96080 AU
retrograde	-3816 Jun 19 j 19:17	19°≈58'52		direct	-3808 Dec 08 j 22:32	25°≈42'32	
min. Earth dist.	-3816 Sep 09 j 23:59	18°≈59'47	47.88038 AU				
opposition	-3816 Sep 11 j 00:40	18°≈58'37	-17°-1'-10	conjunction	-3807 Mar 18 j 00:45	27°≈09'26	-15°-33'-59
direct	-3816 Dec 01 j 03:46	17°≈59'12		minimum elong	-3807 Mar 18 j 00:57	27°≈09'27	15°34'06
				max. Earth dist.	-3807 Mar 18 j 16:06	27°≈10'19	49.88024 AU
conjunction	-3815 Mar 10 j 00:44	19°≈26'32	-16°-18'-31	retrograde	-3807 Jun 28 j 16:19	28°≈39'09	
minimum elong	-3815 Mar 10 j 00:54	19°≈26'32	16°18'38	opposition	-3807 Sep 19 j 18:39	27°≈39'15	-16°-8'-58
max. Earth dist.	-3815 Mar 11 j 03:22	19°≈28'03	49.81042 AU	min. Earth dist.	-3807 Sep 19 j 05:35	27°≈39'53	47.95181 AU
retrograde	-3815 Jun 21 j 01:08	20°≈57'00		direct	-3807 Dec 10 j 05:04	26°≈39'57	
min. Earth dist.	-3815 Sep 11 j 06:31	19°≈57'55	47.90751 AU				
opposition	-3815 Sep 12 j 05:25	19°≈56'49	-16°-56'-21	conjunction	-3806 Mar 19 j 06:31	28°≈06'51	-15°-27'-18
direct	-3815 Dec 02 j 08:37	18°≈57'28		minimum elong	-3806 Mar 19 j 06:41	28°≈06'51	15°27'24
				max. Earth dist.	-3806 Mar 19 j 19:38	28°≈07'35	49.87083 AU
conjunction	-3814 Mar 11 j 06:52	20°≈24'44	-16°-13'-47	retrograde	-3806 Jun 30 j 00:49	29°≈36'31	
minimum elong	-3814 Mar 11 j 07:01	20°≈24'45	16°13'54	opposition	-3806 Sep 20 j 23:11	28°≈36'39	-16°-1'-53
max. Earth dist.	-3814 Mar 12 j 07:34	20°≈26'09	49.83625 AU	min. Earth dist.	-3806 Sep 20 j 11:14	28°≈37'13	47.93987 AU
retrograde	-3814 Jun 22 j 05:52	21°≈55'06		direct	-3806 Dec 11 j 06:34	27°≈37'21	
min. Earth dist.	-3814 Sep 12 j 11:53	20°≈56'04	47.93013 AU				
opposition	-3814 Sep 13 j 10:11	20°≈55'00	-16°-51'-16	conjunction	-3805 Mar 20 j 12:14	29°≈04'15	-15°-20'-21
direct	-3814 Dec 03 j 14:13	19°≈55'41		minimum elong	-3805 Mar 20 j 12:25	29°≈04'16	15°20'28
				max. Earth dist.	-3805 Mar 21 j 01:18	29°≈05'00	49.85844 AU
conjunction	-3813 Mar 12 j 12:49	21°≈22'54	-16°-8'-48		-3805 May 03 j 12:56	0°≈	
minimum elong	-3813 Mar 12 j 13:00	21°≈22'55	16°08'55	retrograde	-3805 Jul 01 j 06:45	0°≈33'54	
max. Earth dist.	-3813 Mar 13 j 11:52	21°≈24'13	49.85710 AU		-3805 Aug 29 j 15:38	30°≈	
retrograde	-3813 Jun 23 j 09:58	22°≈53'10		opposition	-3805 Sep 22 j 03:44	29°≈34'05	-15°-54'-32
opposition	-3813 Sep 14 j 15:08	21°≈53'07	-16°-45'-57	min. Earth dist.	-3805 Sep 21 j 17:08	29°≈34'35	47.92476 AU
min. Earth dist.	-3813 Sep 13 j 19:10	21°≈54'04	47.94757 AU	direct	-3805 Dec 12 j 10:41	28°≈34'48	
direct	-3813 Dec 04 j 20:49	20°≈53'49			-3804 Mar 19 j 11:37	0°≈	
conjunction	-3812 Mar 12 j 19:01	22°≈20'59	-16°-3'-36	conjunction	-3804 Mar 20 j 18:03	0°≈01'44	-15°-13'-9
minimum elong	-3812 Mar 12 j 19:11	22°≈20'59	16°03'43	minimum elong	-3804 Mar 20 j 18:15	0°≈01'44	15°13'14
max. Earth dist.	-3812 Mar 13 j 17:05	22°≈22'15	49.87280 AU	max. Earth dist.	-3804 Mar 21 j 05:29	0°≈02'23	49.84300 AU
retrograde	-3812 Jun 23 j 14:12	23°≈51'09		retrograde	-3804 Jul 01 j 11:46	1°≈31'20	
opposition	-3812 Sep 14 j 19:48	22°≈51'08	-16°-40'-25	opposition	-3804 Sep 22 j 08:04	0°≈31'34	-15°-46'-55
min. Earth dist.	-3812 Sep 14 j 00:39	22°≈52'03	47.95960 AU	min. Earth dist.	-3804 Sep 21 j 21:50	0°≈32'04	47.90639 AU
direct	-3812 Dec 05 j 03:28	21°≈51'51			-3804 Oct 21 j 10:41	30°≈	
				direct	-3804 Dec 12 j 15:21	29°≈32'19	
conjunction	-3811 Mar 14 j 01:04	23°≈18'57	-15°-58'-9		-3803 Feb 02 j 07:14	0°≈	
minimum elong	-3811 Mar 14 j 01:15	23°≈18'57	15°58'17				
max. Earth dist.	-3811 Mar 14 j 20:29	23°≈20'03	49.88315 AU	conjunction	-3803 Mar 21 j 23:59	0°≈59'18	-15°-5'-41



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 7

Attention, astronomical year style is used: The year -3803 in astronomical counting style is the year 3804 BCE in historical counting style.

minimum elong	-3803 Mar 22 j 00:10	0° $\frac{1}{2}$ 59'18	15°05'48	opposition	-3795 Oct 01 j 00:15	9° $\frac{1}{2}$ 10'23	-14°-27'-35
max. Earth dist.	-3803 Mar 22 j 09:55	0° $\frac{1}{2}$ 59'52	49.82386 AU	min. Earth dist.	-3795 Oct 01 j 02:48	9° $\frac{1}{2}$ 10'16	47.52868 AU
retrograde	-3803 Jul 02 j 15:29	2° $\frac{1}{2}$ 28'54		direct	-3795 Dec 21 j 13:02	8° $\frac{1}{2}$ 10'50	
opposition	-3803 Sep 23 j 12:37	1° $\frac{1}{2}$ 29'11	-15°-39'-3				
min. Earth dist.	-3803 Sep 23 j 04:40	1° $\frac{1}{2}$ 29'33	47.88403 AU	conjunction	-3794 Mar 31 j 05:44	9° $\frac{1}{2}$ 38'07	-13°-48'-6
direct	-3803 Dec 13 j 21:50	0° $\frac{1}{2}$ 29'57		minimum elong	-3794 Mar 31 j 05:57	9° $\frac{1}{2}$ 38'08	13°48'11
				max. Earth dist.	-3794 Mar 31 j 02:43	9° $\frac{1}{2}$ 37'57	49.43806 AU
conjunction	-3802 Mar 23 j 05:59	1° $\frac{1}{2}$ 56'57	-14°-57'-59	retrograde	-3794 Jul 11 j 17:00	11° $\frac{1}{2}$ 07'38	
minimum elong	-3802 Mar 23 j 06:11	1° $\frac{1}{2}$ 56'58	14°58'04	opposition	-3794 Oct 02 j 04:37	10° $\frac{1}{2}$ 07'50	-14°-17'-30
max. Earth dist.	-3802 Mar 23 j 15:08	1° $\frac{1}{2}$ 57'29	49.80051 AU	min. Earth dist.	-3794 Oct 02 j 07:23	10° $\frac{1}{2}$ 07'42	47.46664 AU
retrograde	-3802 Jul 03 j 19:16	3° $\frac{1}{2}$ 26'34		direct	-3794 Dec 22 j 16:28	9° $\frac{1}{2}$ 08'14	
opposition	-3802 Sep 24 j 17:00	2° $\frac{1}{2}$ 26'53	-15°-30'-56				
min. Earth dist.	-3802 Sep 24 j 09:40	2° $\frac{1}{2}$ 27'14	47.85698 AU	conjunction	-3793 Apr 01 j 11:40	10° $\frac{1}{2}$ 35'36	-13°-38'-15
direct	-3802 Dec 15 j 04:29	1° $\frac{1}{2}$ 27'40		minimum elong	-3793 Apr 01 j 11:52	10° $\frac{1}{2}$ 35'37	13°38'19
				max. Earth dist.	-3793 Apr 01 j 07:24	10° $\frac{1}{2}$ 35'21	49.37598 AU
conjunction	-3801 Mar 24 j 11:54	2° $\frac{1}{2}$ 54'42	-14°-50'-3	retrograde	-3793 Jul 12 j 21:21	12° $\frac{1}{2}$ 05'09	
minimum elong	-3801 Mar 24 j 12:05	2° $\frac{1}{2}$ 54'43	14°50'09	opposition	-3793 Oct 03 j 09:10	11° $\frac{1}{2}$ 05'19	-14°-7'-10
max. Earth dist.	-3801 Mar 24 j 18:23	2° $\frac{1}{2}$ 55'04	49.77219 AU	min. Earth dist.	-3793 Oct 03 j 13:45	11° $\frac{1}{2}$ 05'06	47.40179 AU
retrograde	-3801 Jul 05 j 03:00	4° $\frac{1}{2}$ 24'19		direct	-3793 Dec 23 j 22:20	10° $\frac{1}{2}$ 05'41	
opposition	-3801 Sep 25 j 21:32	3° $\frac{1}{2}$ 24'40	-15°-22'-35				
min. Earth dist.	-3801 Sep 25 j 16:04	3° $\frac{1}{2}$ 24'55	47.82484 AU	conjunction	-3792 Apr 01 j 17:41	11° $\frac{1}{2}$ 33'10	-13°-28'-8
direct	-3801 Dec 16 j 07:29	2° $\frac{1}{2}$ 25'26		minimum elong	-3792 Apr 01 j 17:54	11° $\frac{1}{2}$ 33'10	13°28'13
				max. Earth dist.	-3792 Apr 01 j 13:01	11° $\frac{1}{2}$ 32'54	49.31117 AU
conjunction	-3800 Mar 24 j 17:58	3° $\frac{1}{2}$ 52'30	-14°-41'-54	retrograde	-3792 Jul 13 j 00:39	13° $\frac{1}{2}$ 02'46	
minimum elong	-3800 Mar 24 j 18:11	3° $\frac{1}{2}$ 52'31	14°41'59	opposition	-3792 Oct 03 j 13:37	12° $\frac{1}{2}$ 02'57	-13°-56'-33
max. Earth dist.	-3800 Mar 24 j 23:44	3° $\frac{1}{2}$ 52'50	49.73851 AU	min. Earth dist.	-3792 Oct 03 j 18:28	12° $\frac{1}{2}$ 02'43	47.33384 AU
retrograde	-3800 Jul 05 j 10:10	5° $\frac{1}{2}$ 22'06		direct	-3792 Dec 24 j 05:14	11° $\frac{1}{2}$ 03'17	
opposition	-3800 Sep 26 j 02:07	4° $\frac{1}{2}$ 22'27	-15°-14'-1				
min. Earth dist.	-3800 Sep 25 j 22:28	4° $\frac{1}{2}$ 22'37	47.78706 AU	conjunction	-3791 Apr 02 j 23:44	12° $\frac{1}{2}$ 30'52	-13°-17'-46
direct	-3800 Dec 16 j 10:49	3° $\frac{1}{2}$ 23'11		minimum elong	-3791 Apr 02 j 23:57	12° $\frac{1}{2}$ 30'53	13°17'49
				max. Earth dist.	-3791 Apr 02 j 16:48	12° $\frac{1}{2}$ 30'28	49.24302 AU
conjunction	-3799 Mar 26 j 00:02	4° $\frac{1}{2}$ 50'18	-14°-33'-31	retrograde	-3791 Jul 14 j 07:34	14° $\frac{1}{2}$ 00'33	
minimum elong	-3799 Mar 26 j 00:13	4° $\frac{1}{2}$ 50'18	14°33'37	opposition	-3791 Oct 04 j 18:05	13° $\frac{1}{2}$ 00'44	-13°-45'-41
max. Earth dist.	-3799 Mar 26 j 03:26	4° $\frac{1}{2}$ 50'29	49.69942 AU	min. Earth dist.	-3791 Oct 05 j 00:37	13° $\frac{1}{2}$ 00'26	47.26241 AU
retrograde	-3799 Jul 06 j 17:30	6° $\frac{1}{2}$ 19'51		direct	-3791 Dec 25 j 08:44	12° $\frac{1}{2}$ 01'03	
opposition	-3799 Sep 27 j 06:28	5° $\frac{1}{2}$ 20'11	-15°-5'-14				
min. Earth dist.	-3799 Sep 27 j 03:32	5° $\frac{1}{2}$ 20'20	47.74400 AU	conjunction	-3790 Apr 04 j 06:01	13° $\frac{1}{2}$ 28'46	-13°-7'-9
direct	-3799 Dec 17 j 14:00	4° $\frac{1}{2}$ 20'53		minimum elong	-3790 Apr 04 j 06:13	13° $\frac{1}{2}$ 28'47	13°07'14
				max. Earth dist.	-3790 Apr 03 j 22:37	13° $\frac{1}{2}$ 28'21	49.17096 AU
conjunction	-3798 Mar 27 j 06:03	5° $\frac{1}{2}$ 48'01	-14°-24'-55	retrograde	-3790 Jul 15 j 14:29	14° $\frac{1}{2}$ 58'33	
minimum elong	-3798 Mar 27 j 06:16	5° $\frac{1}{2}$ 48'02	14°25'01	opposition	-3790 Oct 05 j 22:44	13° $\frac{1}{2}$ 58'44	-13°-34'-33
max. Earth dist.	-3798 Mar 27 j 07:49	5° $\frac{1}{2}$ 48'07	49.65510 AU	min. Earth dist.	-3790 Oct 06 j 06:48	13° $\frac{1}{2}$ 58'21	47.18664 AU
retrograde	-3798 Jul 07 j 20:03	7° $\frac{1}{2}$ 17'33		direct	-3790 Dec 26 j 12:27	12° $\frac{1}{2}$ 59'01	
opposition	-3798 Sep 28 j 11:01	6° $\frac{1}{2}$ 17'52	-14°-56'-12				
min. Earth dist.	-3798 Sep 28 j 10:26	6° $\frac{1}{2}$ 17'53	47.69602 AU	conjunction	-3789 Apr 05 j 12:05	14° $\frac{1}{2}$ 26'52	-12°-56'-18
direct	-3798 Dec 18 j 21:00	5° $\frac{1}{2}$ 18'30		minimum elong	-3789 Apr 05 j 12:19	14° $\frac{1}{2}$ 26'53	12°56'21
				max. Earth dist.	-3789 Apr 05 j 02:35	14° $\frac{1}{2}$ 26'19	49.09442 AU
conjunction	-3797 Mar 28 j 11:55	6° $\frac{1}{2}$ 45'39	-14°-16'-5	retrograde	-3789 Jul 16 j 22:45	15° $\frac{1}{2}$ 56'44	
minimum elong	-3797 Mar 28 j 12:07	6° $\frac{1}{2}$ 45'40	14°16'10	opposition	-3789 Oct 07 j 03:21	14° $\frac{1}{2}$ 56'54	-13°-23'-12
max. Earth dist.	-3797 Mar 28 j 13:03	6° $\frac{1}{2}$ 45'43	49.60631 AU	min. Earth dist.	-3789 Oct 07 j 12:08	14° $\frac{1}{2}$ 56'29	47.10609 AU
retrograde	-3797 Jul 08 j 21:51	8° $\frac{1}{2}$ 15'09		direct	-3789 Dec 27 j 15:20	13° $\frac{1}{2}$ 57'08	
opposition	-3797 Sep 29 j 15:25	7° $\frac{1}{2}$ 15'26	-14°-46'-55				
min. Earth dist.	-3797 Sep 29 j 15:15	7° $\frac{1}{2}$ 15'27	47.64376 AU	conjunction	-3788 Apr 05 j 18:29	15° $\frac{1}{2}$ 25'09	-12°-45'-13
direct	-3797 Dec 20 j 05:13	6° $\frac{1}{2}$ 16'01		minimum elong	-3788 Apr 05 j 18:42	15° $\frac{1}{2}$ 25'09	12°45'17
				max. Earth dist.	-3788 Apr 05 j 07:12	15° $\frac{1}{2}$ 24'30	49.01269 AU
conjunction	-3796 Mar 28 j 17:48	7° $\frac{1}{2}$ 43'12	-14°-7'-1	retrograde	-3788 Jul 17 j 03:27	16° $\frac{1}{2}$ 55'06	
minimum elong	-3796 Mar 28 j 18:01	7° $\frac{1}{2}$ 43'12	14°07'06	opposition	-3788 Oct 07 j 08:05	15° $\frac{1}{2}$ 55'15	-13°-11'-36
max. Earth dist.	-3796 Mar 28 j 16:36	7° $\frac{1}{2}$ 43'07	49.55351 AU	min. Earth dist.	-3788 Oct 07 j 19:24	15° $\frac{1}{2}$ 54'42	47.02028 AU
retrograde	-3796 Jul 09 j 04:50	9° $\frac{1}{2}$ 12'42		direct	-3788 Dec 27 j 21:09	14° $\frac{1}{2}$ 55'25	
opposition	-3796 Sep 29 j 19:47	8° $\frac{1}{2}$ 12'56	-14°-37'-23				
min. Earth dist.	-3796 Sep 29 j 21:04	8° $\frac{1}{2}$ 12'53	47.58789 AU	conjunction	-3787 Apr 07 j 01:03	16° $\frac{1}{2}$ 23'34	-12°-33'-54
direct	-3796 Dec 20 j 08:39	7° $\frac{1}{2}$ 13'27		minimum elong	-3787 Apr 07 j 01:17	16° $\frac{1}{2}$ 23'35	12°33'58
				max. Earth dist.	-3787 Apr 06 j 12:44	16° $\frac{1}{2}$ 22'52	48.92585 AU
conjunction	-3795 Mar 29 j 23:53	8° $\frac{1}{2}$ 40'40	-13°-57'-41	retrograde	-3787 Jul 18 j 05:58	17° $\frac{1}{2}$ 53'36	
minimum elong	-3795 Mar 30 j 00:05	8° $\frac{1}{2}$ 40'41	13°57'45	opposition	-3787 Oct 08 j 12:47	16° $\frac{1}{2}$ 53'43	-12°-59'-45
max. Earth dist.	-3795 Mar 29 j 22:27	8° $\frac{1}{2}$ 40'35	49.49728 AU	min. Earth dist.	-3787 Oct 09 j 00:41	16° $\frac{1}{2}$ 53'09	46.92929 AU
retrograde	-3795 Jul 10 j 10:39	10° $\frac{1}{2}$ 10'10		direct	-3787 Dec 29 j 05:30	15° $\frac{1}{2}$ 53'49	



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 8

Attention, astronomical year style is used: The year -3786 in astronomical counting style is the year 3787 BCE in historical counting style.

conjunction	-3786 Apr 08 j 07:21	17° <del>✕</del> 22'05	-12°-22'-22	retrograde	-3778 Jul 27 j 17:24	26° <del>✕</del> 46'08	
minimum elong	-3786 Apr 08 j 07:33	17° <del>✕</del> 22'06	12°22'25	opposition	-3778 Oct 17 j 09:27	25° <del>✕</del> 45'45	-11°-1'-19
max. Earth dist.	-3786 Apr 07 j 16:21	17° <del>✕</del> 21'14	48.83395 AU	min. Earth dist.	-3778 Oct 18 j 08:21	25° <del>✕</del> 44'38	45.94631 AU
retrograde	-3786 Jul 19 j 12:41	18° <del>✕</del> 52'13		direct	-3777 Jan 07 j 00:17	24° <del>✕</del> 45'04	
opposition	-3786 Oct 09 j 17:32	17° <del>✕</del> 52'17	-12°-47'-40				
min. Earth dist.	-3786 Oct 10 j 07:13	17° <del>✕</del> 51'37	46.83360 AU	conjunction	-3777 Apr 17 j 19:44	26° <del>✕</del> 15'04	-10°-26'-57
direct	-3786 Dec 30 j 09:49	16° <del>✕</del> 52'18		minimum elong	-3777 Apr 17 j 19:56	26° <del>✕</del> 15'05	10°26'59
				max. Earth dist.	-3777 Apr 16 j 18:23	26° <del>✕</del> 13'36	47.84934 AU
conjunction	-3785 Apr 09 j 13:52	18° <del>✕</del> 20'42	-12°-10'-35	retrograde	-3777 Jul 28 j 21:11	27° <del>✕</del> 46'28	
minimum elong	-3785 Apr 09 j 14:06	18° <del>✕</del> 20'43	12°10'38	opposition	-3777 Oct 18 j 14:45	26° <del>✕</del> 46'02	-10°-46'-49
max. Earth dist.	-3785 Apr 08 j 22:31	18° <del>✕</del> 19'49	48.73759 AU	min. Earth dist.	-3777 Oct 19 j 14:12	26° <del>✕</del> 44'53	45.81928 AU
retrograde	-3785 Jul 20 j 19:06	19° <del>✕</del> 50'56		direct	-3776 Jan 08 j 08:57	25° <del>✕</del> 45'14	
opposition	-3785 Oct 10 j 22:17	18° <del>✕</del> 50'56	-12°-35'-20	max. Earth dist.	-3776 Apr 16 j 22:51	27° <del>✕</del> 13'51	47.72131 AU
min. Earth dist.	-3785 Oct 11 j 13:20	18° <del>✕</del> 50'12	46.73366 AU				
direct	-3785 Dec 31 j 13:56	17° <del>✕</del> 50'51		conjunction	-3776 Apr 18 j 02:58	27° <del>✕</del> 15'29	-10°-12'-50
				minimum elong	-3776 Apr 18 j 03:10	27° <del>✕</del> 15'30	10°12'51
conjunction	-3784 Apr 09 j 20:16	19° <del>✕</del> 19'24	-11°-58'-33	retrograde	-3776 Jul 29 j 03:01	28° <del>✕</del> 47'05	
minimum elong	-3784 Apr 09 j 20:28	19° <del>✕</del> 19'25	11°58'35	opposition	-3776 Oct 18 j 20:21	27° <del>✕</del> 46'34	-10°-32'-2
max. Earth dist.	-3784 Apr 09 j 03:02	19° <del>✕</del> 18'25	48.63742 AU	min. Earth dist.	-3776 Oct 19 j 21:52	27° <del>✕</del> 45'19	45.68712 AU
retrograde	-3784 Jul 21 j 02:53	20° <del>✕</del> 49'43		direct	-3775 Jan 08 j 15:34	26° <del>✕</del> 45'39	
opposition	-3784 Oct 11 j 03:03	19° <del>✕</del> 49'39	-12°-22'-44	max. Earth dist.	-3775 Apr 18 j 05:42	28° <del>✕</del> 14'28	47.58802 AU
min. Earth dist.	-3784 Oct 11 j 18:35	19° <del>✕</del> 48'54	46.63017 AU				
direct	-3784 Dec 31 j 17:12	18° <del>✕</del> 49'28		conjunction	-3775 Apr 19 j 10:30	28° <del>✕</del> 16'09	-9°-58'-29
max. Earth dist.	-3783 Apr 10 j 08:16	20° <del>✕</del> 17'08	48.53372 AU	minimum elong	-3775 Apr 19 j 10:42	28° <del>✕</del> 16'09	9°58'30
				retrograde	-3775 Jul 30 j 09:09	29° <del>✕</del> 47'56	
conjunction	-3783 Apr 11 j 02:50	20° <del>✕</del> 18'12	-11°-46'-15	opposition	-3775 Oct 20 j 01:57	28° <del>✕</del> 47'19	-10°-17'-1
minimum elong	-3783 Apr 11 j 03:04	20° <del>✕</del> 18'13	11°46'18	min. Earth dist.	-3775 Oct 21 j 04:55	28° <del>✕</del> 45'59	45.54967 AU
retrograde	-3783 Jul 22 j 07:58	21° <del>✕</del> 48'37		direct	-3774 Jan 09 j 21:42	27° <del>✕</del> 46'16	
opposition	-3783 Oct 12 j 07:55	20° <del>✕</del> 48'29	-12°-9'-51	max. Earth dist.	-3774 Apr 19 j 10:50	29° <del>✕</del> 15'11	47.44975 AU
min. Earth dist.	-3783 Oct 13 j 01:23	20° <del>✕</del> 47'39	46.52346 AU				
direct	-3782 Jan 01 j 23:45	19° <del>✕</del> 48'13		conjunction	-3774 Apr 20 j 17:55	29° <del>✕</del> 17'00	-9°-43'-52
				minimum elong	-3774 Apr 20 j 18:08	29° <del>✕</del> 17'01	9°43'54
conjunction	-3782 Apr 12 j 09:27	21° <del>✕</del> 17'07	-11°-33'-42		-3774 May 22 j 13:41	0° <del>∇</del>	
minimum elong	-3782 Apr 12 j 09:39	21° <del>✕</del> 17'08	11°33'44	retrograde	-3774 Jul 31 j 18:10	0° <del>∇</del> 48'59	
max. Earth dist.	-3782 Apr 11 j 14:29	21° <del>✕</del> 16'02	48.42719 AU		-3774 Oct 11 j 06:36	30° <del>✕</del>	
retrograde	-3782 Jul 23 j 11:01	22° <del>✕</del> 47'39		opposition	-3774 Oct 21 j 07:36	29° <del>✕</del> 48'15	-10°-1'-44
opposition	-3782 Oct 13 j 12:50	21° <del>✕</del> 47'28	-11°-56'-42	min. Earth dist.	-3774 Oct 22 j 11:26	29° <del>✕</del> 46'53	45.40751 AU
min. Earth dist.	-3782 Oct 14 j 06:16	21° <del>✕</del> 46'38	46.41398 AU	direct	-3773 Jan 11 j 01:30	28° <del>✕</del> 47'04	
direct	-3781 Jan 03 j 07:43	20° <del>✕</del> 47'06			-3773 Apr 09 j 03:16	0° <del>∇</del>	
				max. Earth dist.	-3773 Apr 20 j 16:48	0° <del>∇</del> 16'09	47.30679 AU
conjunction	-3781 Apr 13 j 15:51	22° <del>✕</del> 16'12	-11°-20'-53				
minimum elong	-3781 Apr 13 j 16:04	22° <del>✕</del> 16'12	11°20'56	conjunction	-3773 Apr 22 j 01:21	0° <del>∇</del> 18'03	-9°-29'-1
max. Earth dist.	-3781 Apr 12 j 18:52	22° <del>✕</del> 14'59	48.31795 AU	minimum elong	-3773 Apr 22 j 01:33	0° <del>∇</del> 18'04	9°29'02
retrograde	-3781 Jul 24 j 17:25	23° <del>✕</del> 46'54		retrograde	-3773 Aug 02 j 01:29	1° <del>∇</del> 50'14	
opposition	-3781 Oct 14 j 17:55	22° <del>✕</del> 46'39	-11°-43'-16	opposition	-3773 Oct 22 j 13:28	0° <del>∇</del> 49'23	-9°-46'-11
min. Earth dist.	-3781 Oct 15 j 12:52	22° <del>✕</del> 45'44	46.30191 AU	min. Earth dist.	-3773 Oct 23 j 19:25	0° <del>∇</del> 47'55	45.26093 AU
direct	-3780 Jan 04 j 12:36	21° <del>✕</del> 46'12			-3773 Dec 10 j 04:48	30° <del>✕</del>	
				direct	-3772 Jan 12 j 07:55	29° <del>✕</del> 48'02	
conjunction	-3780 Apr 13 j 22:43	23° <del>✕</del> 15'29	-11°-7'-47		-3772 Feb 14 j 10:36	0° <del>∇</del>	
minimum elong	-3780 Apr 13 j 22:55	23° <del>✕</del> 15'30	11°07'49	max. Earth dist.	-3772 Apr 20 j 23:48	1° <del>∇</del> 17'21	47.15983 AU
max. Earth dist.	-3780 Apr 13 j 01:34	23° <del>✕</del> 14'16	48.20601 AU				
retrograde	-3780 Jul 24 j 23:53	24° <del>✕</del> 46'21		conjunction	-3772 Apr 22 j 09:04	1° <del>∇</del> 19'18	-9°-13'-54
opposition	-3780 Oct 14 j 22:56	23° <del>✕</del> 46'04	-11°-29'-34	minimum elong	-3772 Apr 22 j 09:17	1° <del>∇</del> 19'19	9°13'55
min. Earth dist.	-3780 Oct 15 j 18:56	23° <del>✕</del> 45'06	46.18691 AU	retrograde	-3772 Aug 02 j 06:54	2° <del>∇</del> 51'41	
direct	-3779 Jan 04 j 17:39	22° <del>✕</del> 45'33		opposition	-3772 Oct 22 j 19:09	1° <del>∇</del> 50'43	-9°-30'-21
max. Earth dist.	-3779 Apr 14 j 06:34	24° <del>✕</del> 13'43	48.09109 AU	min. Earth dist.	-3772 Oct 24 j 01:23	1° <del>∇</del> 49'13	45.11059 AU
				direct	-3771 Jan 12 j 16:13	0° <del>∇</del> 49'13	
conjunction	-3779 Apr 15 j 05:35	24° <del>✕</del> 15'03	-10°-54'-26	max. Earth dist.	-3771 Apr 22 j 05:16	2° <del>∇</del> 18'40	47.00928 AU
minimum elong	-3779 Apr 15 j 05:48	24° <del>✕</del> 15'04	10°54'29				
retrograde	-3779 Jul 26 j 09:50	25° <del>✕</del> 46'05		conjunction	-3771 Apr 23 j 16:49	2° <del>∇</del> 20'46	-8°-58'-31
opposition	-3779 Oct 16 j 04:05	24° <del>✕</del> 45'46	-11°-15'-34	minimum elong	-3771 Apr 23 j 17:00	2° <del>∇</del> 20'47	8°58'31
min. Earth dist.	-3779 Oct 17 j 00:43	24° <del>✕</del> 44'45	46.06866 AU	retrograde	-3771 Aug 03 j 13:42	3° <del>∇</del> 53'23	
direct	-3778 Jan 05 j 19:48	23° <del>✕</del> 45'09		opposition	-3771 Oct 24 j 01:11	2° <del>∇</del> 52'18	-9°-14'-13
				min. Earth dist.	-3771 Oct 25 j 09:12	2° <del>∇</del> 50'43	44.95708 AU
conjunction	-3778 Apr 16 j 12:32	25° <del>✕</del> 14'55	-10°-40'-49	direct	-3770 Jan 13 j 22:40	1° <del>∇</del> 50'39	
minimum elong	-3778 Apr 16 j 12:45	25° <del>✕</del> 14'55	10°40'51	max. Earth dist.	-3770 Apr 23 j 13:01	3° <del>∇</del> 20'23	46.85571 AU
max. Earth dist.	-3778 Apr 15 j 12:11	25° <del>✕</del> 13'30	47.97236 AU				



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 9

Attention, astronomical year style is used: The year -3770 in astronomical counting style is the year 3771 BCE in historical counting style.

conjunction	-3770 Apr 25 j 00:38	3°V22'29	-8°-42'-51	opposition	-3762 Nov 02 j 13:28	12°V24'47	-6°-35'-59
minimum elong	-3770 Apr 25 j 00:50	3°V22'30	8°42'52	min. Earth dist.	-3762 Nov 04 j 07:31	12°V22'40	43.42972 AU
retrograde	-3770 Aug 04 j 19:32	4°V55'23		direct	-3761 Jan 23 j 10:06	11°V21'42	
opposition	-3770 Oct 25 j 07:18	3°V54'11	-8°-57'-49	max. Earth dist.	-3761 May 03 j 05:38	12°V54'03	45.32371 AU
min. Earth dist.	-3770 Oct 26 j 15:58	3°V52'33	44.80068 AU				
direct	-3769 Jan 15 j 05:53	2°V52'23		conjunction	-3761 May 05 j 06:47	12°V57'02	-6°-9'-27
max. Earth dist.	-3769 Apr 24 j 19:05	4°V22'20	46.69958 AU	minimum elong	-3761 May 05 j 06:56	12°V57'03	6°09'27
				retrograde	-3761 Aug 15 j 02:06	14°V32'51	
conjunction	-3769 Apr 26 j 08:31	4°V24'33	-8°-26'-55	opposition	-3761 Nov 03 j 20:56	13°V30'30	-6°-16'-57
minimum elong	-3769 Apr 26 j 08:42	4°V24'33	8°26'55	min. Earth dist.	-3761 Nov 05 j 17:08	13°V28'15	43.23943 AU
retrograde	-3769 Aug 06 j 05:59	5°V57'42		direct	-3760 Jan 24 j 18:40	12°V27'11	
opposition	-3769 Oct 26 j 13:25	4°V56'24	-8°-41'-6	max. Earth dist.	-3760 May 03 j 14:59	13°V59'55	45.13282 AU
min. Earth dist.	-3769 Oct 27 j 22:37	4°V54'45	44.64188 AU				
direct	-3768 Jan 16 j 09:02	3°V54'28		conjunction	-3760 May 05 j 16:26	14°V02'56	-5°-51'-2
max. Earth dist.	-3768 Apr 25 j 02:19	5°V24'43	46.54083 AU	minimum elong	-3760 May 05 j 16:34	14°V02'57	5°51'02
				retrograde	-3760 Aug 15 j 07:33	15°V39'06	
conjunction	-3768 Apr 26 j 16:42	5°V26'59	-8°-10'-41	opposition	-3760 Nov 04 j 04:36	14°V36'34	-5°-57'-37
minimum elong	-3768 Apr 26 j 16:53	5°V27'00	8°10'43	min. Earth dist.	-3760 Nov 06 j 01:21	14°V34'17	43.04568 AU
retrograde	-3768 Aug 06 j 15:50	7°V00'27		direct	-3759 Jan 25 j 05:14	13°V33'01	
opposition	-3768 Oct 26 j 19:53	5°V59'03	-8°-24'-6	max. Earth dist.	-3759 May 04 j 22:32	15°V06'02	44.93879 AU
min. Earth dist.	-3768 Oct 28 j 06:57	5°V57'18	44.48035 AU				
direct	-3767 Jan 16 j 13:36	4°V56'59		conjunction	-3759 May 07 j 02:02	15°V09'12	-5°-32'-21
max. Earth dist.	-3767 Apr 26 j 09:54	6°V27'33	46.37936 AU	minimum elong	-3759 May 07 j 02:11	15°V09'13	5°32'19
				retrograde	-3759 Aug 16 j 17:05	16°V45'45	
conjunction	-3767 Apr 28 j 01:02	6°V29'53	-7°-54'-11	opposition	-3759 Nov 05 j 12:21	15°V43'01	-5°-37'-58
minimum elong	-3767 Apr 28 j 01:13	6°V29'53	7°54'11	min. Earth dist.	-3759 Nov 07 j 10:02	15°V40'41	42.84926 AU
retrograde	-3767 Aug 07 j 22:13	8°V03'39		direct	-3758 Jan 26 j 12:01	14°V39'14	
opposition	-3767 Oct 28 j 02:15	7°V02'10	-8°-6'-48	max. Earth dist.	-3758 May 06 j 07:55	16°V12'40	44.74217 AU
min. Earth dist.	-3767 Oct 29 j 13:29	7°V00'24	44.31582 AU				
direct	-3766 Jan 17 j 22:20	5°V59'58		conjunction	-3758 May 08 j 11:58	16°V15'52	-5°-13'-22
max. Earth dist.	-3766 Apr 27 j 16:04	7°V30'47	46.21447 AU	minimum elong	-3758 May 08 j 12:05	16°V15'53	5°13'20
				retrograde	-3758 Aug 18 j 03:22	17°V52'49	
conjunction	-3766 Apr 29 j 09:29	7°V33'16	-7°-37'-25	opposition	-3758 Nov 06 j 20:31	16°V49'53	-5°-18'-1
minimum elong	-3766 Apr 29 j 09:40	7°V33'16	7°37'25	min. Earth dist.	-3758 Nov 08 j 19:36	16°V47'28	42.65054 AU
retrograde	-3766 Aug 09 j 04:57	9°V07'22		direct	-3757 Jan 27 j 18:16	15°V45'52	
opposition	-3766 Oct 29 j 09:00	8°V05'47	-7°-49'-12	max. Earth dist.	-3757 May 07 j 17:03	17°V19'43	44.54361 AU
min. Earth dist.	-3766 Oct 30 j 22:15	8°V03'55	44.14772 AU				
direct	-3765 Jan 19 j 06:28	7°V03'26		conjunction	-3757 May 09 j 21:52	17°V22'59	-4°-54'-5
max. Earth dist.	-3765 Apr 29 j 00:25	8°V34'38	46.04562 AU	minimum elong	-3757 May 09 j 22:00	17°V23'00	4°54'03
				retrograde	-3757 Aug 19 j 14:13	19°V00'21	
conjunction	-3765 Apr 30 j 18:09	8°V37'09	-7°-20'-21	opposition	-3757 Nov 08 j 04:44	17°V57'15	-4°-57'-46
minimum elong	-3765 Apr 30 j 18:20	8°V37'09	7°20'20	min. Earth dist.	-3757 Nov 10 j 03:41	17°V54'50	42.44997 AU
retrograde	-3765 Aug 10 j 11:29	10°V11'35		direct	-3756 Jan 29 j 02:13	16°V53'00	
opposition	-3765 Oct 30 j 15:54	9°V09'53	-7°-31'-20	max. Earth dist.	-3756 May 08 j 01:37	18°V27'15	44.34303 AU
min. Earth dist.	-3765 Nov 01 j 06:14	9°V07'58	43.97523 AU				
direct	-3764 Jan 20 j 14:35	8°V07'24		conjunction	-3756 May 10 j 08:13	18°V30'38	-4°-34'-31
max. Earth dist.	-3764 Apr 29 j 06:46	9°V38'49	45.87220 AU	minimum elong	-3756 May 10 j 08:20	18°V30'39	4°34'29
				retrograde	-3756 Aug 20 j 00:28	20°V08'27	
conjunction	-3764 May 01 j 03:04	9°V41'30	-7°-3'-2	opposition	-3756 Nov 08 j 13:13	19°V05'10	-4°-37'-11
minimum elong	-3764 May 01 j 03:13	9°V41'30	7°03'02	min. Earth dist.	-3756 Nov 10 j 13:58	19°V02'39	42.24748 AU
retrograde	-3764 Aug 10 j 21:44	11°V16'17		direct	-3755 Jan 29 j 11:34	18°V00'43	
opposition	-3764 Oct 30 j 22:50	10°V14'28	-7°-13'-10	max. Earth dist.	-3755 May 09 j 12:25	19°V35'30	44.14045 AU
min. Earth dist.	-3764 Nov 01 j 14:26	10°V12'28	43.79811 AU				
direct	-3763 Jan 20 j 19:29	9°V11'47		conjunction	-3755 May 11 j 18:55	19°V38'54	-4°-14'-39
max. Earth dist.	-3763 Apr 30 j 14:35	10°V43'32	45.69386 AU	minimum elong	-3755 May 11 j 19:02	19°V38'55	4°14'38
				retrograde	-3755 Aug 21 j 08:35	21°V17'12	
conjunction	-3763 May 02 j 12:18	10°V46'17	-6°-45'-27	opposition	-3755 Nov 09 j 21:58	20°V13'45	-4°-16'-17
minimum elong	-3763 May 02 j 12:28	10°V46'18	6°45'26	min. Earth dist.	-3755 Nov 11 j 23:04	20°V11'12	42.04275 AU
retrograde	-3763 Aug 12 j 07:49	12°V21'26		direct	-3754 Jan 30 j 22:45	19°V09'05	
opposition	-3763 Nov 01 j 06:11	11°V19'26	-6°-54'-43	max. Earth dist.	-3754 May 10 j 20:54	20°V44'17	43.93534 AU
min. Earth dist.	-3763 Nov 02 j 23:50	11°V17'20	43.61612 AU				
direct	-3762 Jan 22 j 01:49	10°V16'34		conjunction	-3754 May 13 j 05:33	20°V47'51	-3°-54'-29
max. Earth dist.	-3762 May 01 j 22:35	11°V48'38	45.51095 AU	minimum elong	-3754 May 13 j 05:40	20°V47'51	3°54'27
				retrograde	-3754 Aug 22 j 19:50	22°V26'39	
conjunction	-3762 May 03 j 21:26	11°V51'29	-6°-27'-35	opposition	-3754 Nov 11 j 06:56	21°V23'02	-3°-55'-5
minimum elong	-3762 May 03 j 21:35	11°V51'29	6°27'35	min. Earth dist.	-3754 Nov 13 j 09:21	21°V20'25	41.83535 AU
retrograde	-3762 Aug 13 j 17:48	13°V26'57		direct	-3753 Feb 01 j 06:28	20°V18'10	



Attention, astronomical year style is used: The year -3753 in astronomical counting style is the year 3754 BCE in historical counting style.

max. Earth dist.	-3753 May 12 j 07:27	21° $\Upsilon$ 53'54	43.72699 AU	direct	-3745 Feb 10 j 13:49	29° $\Upsilon$ 56'01	
					-3745 Feb 28 j 18:05	0° $\mathcal{B}$	
conjunction	-3753 May 14 j 16:49	21° $\Upsilon$ 57'31	-3°-34'-3	max. Earth dist.	-3745 May 22 j 01:28	1° $\mathcal{B}$ 36'13	41.93296 AU
minimum elong	-3753 May 14 j 16:55	21° $\Upsilon$ 57'31	3°34'01				
retrograde	-3753 Aug 24 j 06:29	23° $\Upsilon$ 36'52		conjunction	-3745 May 24 j 20:18	1° $\mathcal{B}$ 40'38	0°-40'-19
opposition	-3753 Nov 12 j 16:12	22° $\Upsilon$ 33'04	-3°-33'-34	minimum elong	-3745 May 24 j 20:19	1° $\mathcal{B}$ 40'38	0°40'16
min. Earth dist.	-3753 Nov 14 j 20:13	22° $\Upsilon$ 30'21	41.62440 AU	retrograde	-3745 Sep 03 j 11:19	3° $\mathcal{B}$ 24'36	
direct	-3752 Feb 02 j 14:52	21° $\Upsilon$ 27'58		opposition	-3745 Nov 22 j 04:26	2° $\mathcal{B}$ 18'55	0°-30'-26
max. Earth dist.	-3752 May 12 j 17:24	23° $\Upsilon$ 04'11	43.51497 AU	min. Earth dist.	-3745 Nov 24 j 16:04	2° $\mathcal{B}$ 15'42	39.81531 AU
				direct	-3744 Feb 12 j 02:47	1° $\mathcal{B}$ 11'31	
conjunction	-3752 May 15 j 04:19	23° $\Upsilon$ 07'56	-3°-13'-19	max. Earth dist.	-3744 May 22 j 13:19	2° $\mathcal{B}$ 52'20	41.69863 AU
minimum elong	-3752 May 15 j 04:24	23° $\Upsilon$ 07'56	3°13'16				
retrograde	-3752 Aug 24 j 20:17	24° $\Upsilon$ 47'48		conjunction	-3744 May 25 j 10:05	2° $\mathcal{B}$ 56'55	0°-17'-22
opposition	-3752 Nov 13 j 01:43	23° $\Upsilon$ 43'49	-3°-11'-45	minimum elong	-3744 May 25 j 10:05	2° $\mathcal{B}$ 56'55	0°17'18
min. Earth dist.	-3752 Nov 15 j 06:17	23° $\Upsilon$ 41'04	41.40958 AU	retrograde	-3744 Sep 04 j 01:03	4° $\mathcal{B}$ 41'34	
direct	-3751 Feb 02 j 22:55	22° $\Upsilon$ 38'29		opposition	-3744 Nov 22 j 16:26	3° $\mathcal{B}$ 35'38	0°-6'-10
max. Earth dist.	-3751 May 14 j 03:08	24° $\Upsilon$ 15'11	43.29870 AU	min. Earth dist.	-3744 Nov 25 j 05:34	3° $\mathcal{B}$ 32'19	39.58038 AU
				direct	-3743 Feb 12 j 14:32	2° $\mathcal{B}$ 27'56	
conjunction	-3751 May 16 j 16:07	24° $\Upsilon$ 19'04	-2°-52'-19	asc. node	-3743 Feb 23 j 08:47	2° $\mathcal{B}$ 29'22	
minimum elong	-3751 May 16 j 16:12	24° $\Upsilon$ 19'04	2°52'17	max. Earth dist.	-3743 May 24 j 03:43	4° $\mathcal{B}$ 09'31	41.46306 AU
retrograde	-3751 Aug 26 j 09:13	25° $\Upsilon$ 59'29					
opposition	-3751 Nov 14 j 11:38	24° $\Upsilon$ 55'17	-2°-49'-38	conjunction	-3743 May 27 j 00:17	4° $\mathcal{B}$ 14'07	0°05'58
min. Earth dist.	-3751 Nov 16 j 18:30	24° $\Upsilon$ 52'24	41.19067 AU	minimum elong	-3743 May 27 j 00:17	4° $\mathcal{B}$ 14'07	0°06'02
direct	-3750 Feb 04 j 08:09	23° $\Upsilon$ 49'41		behind sun begin	-3743 May 26 j 18:05	4° $\mathcal{B}$ 13'44	
max. Earth dist.	-3750 May 15 j 14:42	25° $\Upsilon$ 26'57	43.07851 AU	behind sun end	-3743 May 27 j 06:29	4° $\mathcal{B}$ 14'30	
				retrograde	-3743 Sep 05 j 11:57	5° $\mathcal{B}$ 59'29	
conjunction	-3750 May 18 j 04:12	25° $\Upsilon$ 30'54	-2°-31'-1	opposition	-3743 Nov 24 j 04:48	4° $\mathcal{B}$ 53'19	0°18'23
minimum elong	-3750 May 18 j 04:16	25° $\Upsilon$ 30'55	2°30'58	min. Earth dist.	-3743 Nov 26 j 18:24	4° $\mathcal{B}$ 49'57	39.34406 AU
retrograde	-3750 Aug 27 j 18:44	27° $\Upsilon$ 11'52		direct	-3742 Feb 14 j 04:40	3° $\mathcal{B}$ 45'20	
opposition	-3750 Nov 15 j 21:42	26° $\Upsilon$ 07'27	-2°-27'-12	max. Earth dist.	-3742 May 25 j 16:31	5° $\mathcal{B}$ 27'35	41.22597 AU
min. Earth dist.	-3750 Nov 18 j 04:54	26° $\Upsilon$ 04'32	40.96796 AU				
direct	-3749 Feb 05 j 20:58	25° $\Upsilon$ 01'34		conjunction	-3742 May 28 j 14:45	5° $\mathcal{B}$ 32'20	0°29'26
max. Earth dist.	-3749 May 17 j 00:25	26° $\Upsilon$ 39'18	42.85463 AU	minimum elong	-3742 May 28 j 14:44	5° $\mathcal{B}$ 32'19	0°29'30
				retrograde	-3742 Sep 07 j 02:49	7° $\mathcal{B}$ 18'26	
conjunction	-3749 May 19 j 16:21	26° $\Upsilon$ 43'26	-2°-9'-26	opposition	-3742 Nov 25 j 17:25	6° $\mathcal{B}$ 12'01	0°43'14
minimum elong	-3749 May 19 j 16:24	26° $\Upsilon$ 43'26	2°09'24	min. Earth dist.	-3742 Nov 28 j 07:42	6° $\mathcal{B}$ 08'36	39.10614 AU
retrograde	-3749 Aug 29 j 05:36	28° $\Upsilon$ 24'57		direct	-3741 Feb 15 j 15:18	5° $\mathcal{B}$ 03'43	
opposition	-3749 Nov 17 j 08:03	27° $\Upsilon$ 20'18	-2°-4'-28	max. Earth dist.	-3741 May 27 j 06:39	6° $\mathcal{B}$ 46'44	40.98662 AU
min. Earth dist.	-3749 Nov 19 j 16:52	27° $\Upsilon$ 17'17	40.74193 AU				
direct	-3748 Feb 07 j 07:54	26° $\Upsilon$ 14'08		conjunction	-3741 May 30 j 05:45	6° $\mathcal{B}$ 51'34	0°53'12
max. Earth dist.	-3748 May 17 j 12:49	27° $\Upsilon$ 52'28	42.62749 AU	minimum elong	-3741 May 30 j 05:43	6° $\mathcal{B}$ 51'34	0°53'18
				retrograde	-3741 Sep 08 j 17:58	8° $\mathcal{B}$ 38'27	
conjunction	-3748 May 20 j 05:03	27° $\Upsilon$ 56'39	-1°-47'-35	opposition	-3741 Nov 27 j 06:41	7° $\mathcal{B}$ 31'46	1°08'23
minimum elong	-3748 May 20 j 05:06	27° $\Upsilon$ 56'39	1°47'31	min. Earth dist.	-3741 Nov 29 j 22:50	7° $\mathcal{B}$ 28'14	38.86568 AU
retrograde	-3748 Aug 29 j 16:13	29° $\Upsilon$ 38'45		direct	-3740 Feb 17 j 01:46	6° $\mathcal{B}$ 23'09	
opposition	-3748 Nov 17 j 18:40	28° $\Upsilon$ 33'51	-1°-41'-25	max. Earth dist.	-3740 May 27 j 21:14	8° $\mathcal{B}$ 06'56	40.74453 AU
min. Earth dist.	-3748 Nov 20 j 04:40	28° $\Upsilon$ 30'45	40.51296 AU				
direct	-3747 Feb 07 j 18:25	27° $\Upsilon$ 27'22		conjunction	-3740 May 30 j 21:15	8° $\mathcal{B}$ 11'52	1°17'14
max. Earth dist.	-3747 May 19 j 00:10	29° $\Upsilon$ 06'16	42.39783 AU	minimum elong	-3740 May 30 j 21:12	8° $\mathcal{B}$ 11'52	1°17'20
				retrograde	-3740 Sep 09 j 10:53	9° $\mathcal{B}$ 59'32	
conjunction	-3747 May 21 j 17:52	29° $\Upsilon$ 10'33	-1°-25'-27	opposition	-3740 Nov 27 j 20:10	8° $\mathcal{B}$ 52'33	1°33'49
minimum elong	-3747 May 21 j 17:54	29° $\Upsilon$ 10'34	1°25'24	min. Earth dist.	-3740 Nov 30 j 12:32	8° $\mathcal{B}$ 49'00	38.62237 AU
	-3747 Jun 23 j 12:29	0° $\mathcal{B}$		direct	-3739 Feb 17 j 15:39	7° $\mathcal{B}$ 43'36	
retrograde	-3747 Aug 31 j 06:16	0° $\mathcal{B}$ 53'16		max. Earth dist.	-3739 May 29 j 10:57	9° $\mathcal{B}$ 28'06	40.49926 AU
	-3747 Nov 09 j 22:02	30° $\mathcal{R}\Upsilon$					
opposition	-3747 Nov 19 j 05:35	29° $\Upsilon$ 48'06	-1°-18'-4	conjunction	-3739 Jun 01 j 13:11	9° $\mathcal{B}$ 33'12	1°41'32
min. Earth dist.	-3747 Nov 21 j 15:52	29° $\Upsilon$ 44'59	40.28192 AU	minimum elong	-3739 Jun 01 j 13:08	9° $\mathcal{B}$ 33'12	1°41'38
direct	-3746 Feb 09 j 03:13	28° $\Upsilon$ 41'19		retrograde	-3739 Sep 11 j 04:39	11° $\mathcal{B}$ 21'39	
	-3746 May 07 j 03:37	0° $\mathcal{B}$		opposition	-3739 Nov 29 j 10:19	10° $\mathcal{B}$ 14'22	1°59'31
max. Earth dist.	-3746 May 20 j 12:02	0° $\mathcal{B}$ 20'49	42.16607 AU	min. Earth dist.	-3739 Dec 02 j 04:42	10° $\mathcal{B}$ 10'41	38.37605 AU
				direct	-3738 Feb 19 j 05:40	9° $\mathcal{B}$ 05'04	
conjunction	-3746 May 23 j 06:51	0° $\mathcal{B}$ 25'12	-1°-3'-1	max. Earth dist.	-3738 May 31 j 03:10	10° $\mathcal{B}$ 50'25	40.25097 AU
minimum elong	-3746 May 23 j 06:53	0° $\mathcal{B}$ 25'12	1°02'58				
retrograde	-3746 Sep 01 j 20:43	2° $\mathcal{B}$ 08'32		conjunction	-3738 Jun 03 j 05:26	10° $\mathcal{B}$ 55'34	2°06'04
opposition	-3746 Nov 20 j 16:58	1° $\mathcal{B}$ 03'06	0°-54'-24	minimum elong	-3738 Jun 03 j 05:22	10° $\mathcal{B}$ 55'34	2°06'09
min. Earth dist.	-3746 Nov 23 j 04:50	0° $\mathcal{B}$ 59'53	40.04920 AU	retrograde	-3738 Sep 12 j 19:50	12° $\mathcal{B}$ 44'49	
	-3745 Jan 23 j 11:30	30° $\mathcal{R}\Upsilon$		opposition	-3738 Dec 01 j 00:48	11° $\mathcal{B}$ 37'13	2°25'30



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 11

Attention, astronomical year style is used: The year -3738 in astronomical counting style is the year 3739 BCE in historical counting style.

min. Earth dist.	-3738 Dec 03 j 19:34	11° <b>8</b> 33'29	38.12682 AU	retrograde	-3730 Sep 24 j 22:16	24° <b>8</b> 30'56	
direct	-3737 Feb 20 j 22:28	10° <b>8</b> 27'32		opposition	-3730 Dec 12 j 13:11	23° <b>8</b> 20'36	6°01'34
max. Earth dist.	-3737 Jun 01 j 17:41	12° <b>8</b> 13'35	39.99993 AU	min. Earth dist.	-3730 Dec 15 j 12:50	23° <b>8</b> 16'24	36.09732 AU
				direct	-3729 Mar 04 j 06:59	22° <b>8</b> 07'44	
conjunction	-3737 Jun 04 j 22:07	12° <b>8</b> 18'56	2°30'50	max. Earth dist.	-3729 Jun 13 j 19:35	24° <b>8</b> 01'35	37.95971 AU
minimum elong	-3737 Jun 04 j 22:02	12° <b>8</b> 18'56	2°30'56				
retrograde	-3737 Sep 14 j 12:07	14° <b>8</b> 09'00		conjunction	-3729 Jun 17 j 04:22	24° <b>8</b> 07'38	5°55'57
opposition	-3737 Dec 02 j 15:31	13° <b>8</b> 01'04	2°51'44	minimum elong	-3729 Jun 17 j 04:09	24° <b>8</b> 07'37	5°56'04
min. Earth dist.	-3737 Dec 05 j 11:35	12° <b>8</b> 57'14	37.87531 AU	retrograde	-3729 Sep 26 j 18:27	26° <b>8</b> 05'25	
direct	-3736 Feb 22 j 12:39	11° <b>8</b> 50'59		opposition	-3729 Dec 14 j 08:13	24° <b>8</b> 54'45	6°29'22
max. Earth dist.	-3736 Jun 02 j 10:34	13° <b>8</b> 37'55	39.74658 AU	min. Earth dist.	-3729 Dec 17 j 09:15	24° <b>8</b> 50'27	35.84396 AU
				direct	-3728 Mar 04 j 23:24	23° <b>8</b> 41'29	
conjunction	-3736 Jun 05 j 15:25	13° <b>8</b> 43'20	2°55'50	max. Earth dist.	-3728 Jun 14 j 16:25	25° <b>8</b> 36'28	37.70440 AU
minimum elong	-3736 Jun 05 j 15:19	13° <b>8</b> 43'20	2°55'55				
	-3736 Jul 25 j 08:09	15° <b>8</b>		conjunction	-3728 Jun 18 j 01:40	25° <b>8</b> 42'37	6°22'12
retrograde	-3736 Sep 15 j 02:58	15° <b>8</b> 34'14		minimum elong	-3728 Jun 18 j 01:27	25° <b>8</b> 42'36	6°22'19
	-3736 Nov 07 j 00:48	15° <b>8</b>		retrograde	-3728 Sep 27 j 17:18	27° <b>8</b> 41'30	
opposition	-3736 Dec 03 j 06:54	14° <b>8</b> 25'58	3°18'14	opposition	-3728 Dec 15 j 03:54	26° <b>8</b> 30'30	6°57'17
min. Earth dist.	-3736 Dec 06 j 04:07	14° <b>8</b> 22'02	37.62186 AU	min. Earth dist.	-3728 Dec 18 j 04:38	26° <b>8</b> 26'11	35.59004 AU
direct	-3735 Feb 23 j 03:53	13° <b>8</b> 15'28		direct	-3727 Mar 06 j 16:53	25° <b>8</b> 16'48	
	-3735 Jun 02 j 05:23	15° <b>8</b>		max. Earth dist.	-3727 Jun 16 j 12:50	27° <b>8</b> 12'52	37.44811 AU
max. Earth dist.	-3735 Jun 04 j 03:05	15° <b>8</b> 03'15	39.49171 AU				
				conjunction	-3727 Jun 19 j 23:31	27° <b>8</b> 19'10	6°48'33
conjunction	-3735 Jun 07 j 08:51	15° <b>8</b> 08'47	3°21'03	minimum elong	-3727 Jun 19 j 23:17	27° <b>8</b> 19'09	6°48'40
minimum elong	-3735 Jun 07 j 08:44	15° <b>8</b> 08'46	3°21'10	retrograde	-3727 Sep 29 j 16:52	29° <b>8</b> 19'12	
retrograde	-3735 Sep 16 j 21:24	17° <b>8</b> 00'33		opposition	-3727 Dec 17 j 00:21	28° <b>8</b> 07'48	7°25'17
opposition	-3735 Dec 04 j 22:35	15° <b>8</b> 51'55	3°44'58	min. Earth dist.	-3727 Dec 20 j 02:45	28° <b>8</b> 03'22	35.33534 AU
min. Earth dist.	-3735 Dec 07 j 19:43	15° <b>8</b> 47'59	37.36740 AU	direct	-3726 Mar 08 j 12:19	26° <b>8</b> 53'41	
	-3734 Jan 16 j 15:04	15° <b>8</b>		max. Earth dist.	-3726 Jun 18 j 11:48	28° <b>8</b> 50'59	37.19109 AU
direct	-3734 Feb 24 j 17:42	14° <b>8</b> 41'01					
	-3734 Apr 04 j 13:07	15° <b>8</b>		conjunction	-3726 Jun 21 j 22:04	28° <b>8</b> 57'18	7°14'56
max. Earth dist.	-3734 Jun 05 j 20:04	16° <b>8</b> 29'41	39.23589 AU	minimum elong	-3726 Jun 21 j 21:49	28° <b>8</b> 57'17	7°15'03
					-3726 Jul 27 j 10:38	0° <b>II</b>	
conjunction	-3734 Jun 09 j 02:50	16° <b>8</b> 35'19	3°46'28	retrograde	-3726 Oct 01 j 17:01	0° <b>II</b> 58'27	
minimum elong	-3734 Jun 09 j 02:43	16° <b>8</b> 35'18	3°46'34		-3726 Dec 09 j 14:09	30° <b>8</b>	
retrograde	-3734 Sep 18 j 16:09	18° <b>8</b> 28'01		opposition	-3726 Dec 18 j 21:18	29° <b>8</b> 46'40	7°53'22
opposition	-3734 Dec 06 j 14:52	17° <b>8</b> 19'01	4°11'55	min. Earth dist.	-3726 Dec 21 j 23:32	29° <b>8</b> 42'13	35.08004 AU
min. Earth dist.	-3734 Dec 09 j 13:31	17° <b>8</b> 14'58	37.11256 AU	direct	-3725 Mar 10 j 11:16	28° <b>8</b> 32'05	
direct	-3733 Feb 26 j 08:02	16° <b>8</b> 07'42			-3725 Jun 03 j 17:31	0° <b>II</b>	
max. Earth dist.	-3733 Jun 07 j 14:50	17° <b>8</b> 57'22	38.98000 AU	max. Earth dist.	-3725 Jun 20 j 09:06	0° <b>II</b> 30'28	36.93353 AU
conjunction	-3733 Jun 10 j 21:15	18° <b>8</b> 03'02	4°12'04	conjunction	-3725 Jun 23 j 21:08	0° <b>II</b> 36'59	7°41'22
minimum elong	-3733 Jun 10 j 21:06	18° <b>8</b> 03'02	4°12'11	minimum elong	-3725 Jun 23 j 20:52	0° <b>II</b> 36'58	7°41'30
retrograde	-3733 Sep 20 j 11:25	19° <b>8</b> 56'40		retrograde	-3725 Oct 03 j 17:52	2° <b>II</b> 39'17	
opposition	-3733 Dec 08 j 07:37	18° <b>8</b> 47'19	4°39'04	opposition	-3725 Dec 20 j 18:55	1° <b>II</b> 27'05	8°21'29
min. Earth dist.	-3733 Dec 11 j 05:45	18° <b>8</b> 43'17	36.85790 AU	min. Earth dist.	-3725 Dec 23 j 22:09	1° <b>II</b> 22'33	34.82460 AU
direct	-3732 Feb 28 j 02:38	17° <b>8</b> 35'36		direct	-3724 Mar 11 j 08:35	0° <b>II</b> 12'01	
max. Earth dist.	-3732 Jun 08 j 08:10	19° <b>8</b> 26'12	38.72434 AU	max. Earth dist.	-3724 Jun 21 j 09:28	2° <b>II</b> 11'40	36.67584 AU
conjunction	-3732 Jun 11 j 16:11	19° <b>8</b> 32'02	4°37'50	conjunction	-3724 Jun 24 j 21:00	2° <b>II</b> 18'13	8°07'47
minimum elong	-3732 Jun 11 j 16:02	19° <b>8</b> 32'01	4°37'56	minimum elong	-3724 Jun 24 j 20:43	2° <b>II</b> 18'11	8°07'55
retrograde	-3732 Sep 21 j 07:58	21° <b>8</b> 26'38		retrograde	-3724 Oct 04 j 15:38	4° <b>II</b> 21'41	
opposition	-3732 Dec 09 j 00:52	20° <b>8</b> 16'57	5°06'25	opposition	-3724 Dec 21 j 17:16	3° <b>II</b> 09'03	8°49'35
min. Earth dist.	-3732 Dec 12 j 00:03	20° <b>8</b> 12'50	36.60387 AU	min. Earth dist.	-3724 Dec 24 j 20:51	3° <b>II</b> 04'27	34.56943 AU
direct	-3731 Feb 28 j 19:52	19° <b>8</b> 04'50		direct	-3723 Mar 13 j 07:37	1° <b>II</b> 53'30	
max. Earth dist.	-3731 Jun 10 j 04:27	20° <b>8</b> 56'34	38.46923 AU	max. Earth dist.	-3723 Jun 23 j 08:59	3° <b>II</b> 54'18	36.41888 AU
conjunction	-3731 Jun 13 j 11:47	21° <b>8</b> 02'24	5°03'44	conjunction	-3723 Jun 26 j 21:18	4° <b>II</b> 00'59	8°34'10
minimum elong	-3731 Jun 13 j 11:37	21° <b>8</b> 02'23	5°03'52	minimum elong	-3723 Jun 26 j 20:59	4° <b>II</b> 00'58	8°34'18
retrograde	-3731 Sep 23 j 02:19	22° <b>8</b> 58'01		retrograde	-3723 Oct 06 j 15:57	6° <b>II</b> 05'38	
opposition	-3731 Dec 10 j 18:49	21° <b>8</b> 48'01	5°33'55	opposition	-3723 Dec 23 j 16:14	4° <b>II</b> 52'35	9°17'39
min. Earth dist.	-3731 Dec 13 j 18:09	21° <b>8</b> 43'52	36.35038 AU	min. Earth dist.	-3723 Dec 26 j 19:33	4° <b>II</b> 47'58	34.31557 AU
direct	-3730 Mar 02 j 14:23	20° <b>8</b> 35'32		direct	-3722 Mar 15 j 05:27	3° <b>II</b> 36'31	
max. Earth dist.	-3730 Jun 11 j 23:10	22° <b>8</b> 28'16	38.21456 AU	max. Earth dist.	-3722 Jun 25 j 10:06	5° <b>II</b> 38'37	36.16325 AU
conjunction	-3730 Jun 15 j 07:37	22° <b>8</b> 34'14	5°29'47	conjunction	-3722 Jun 28 j 22:11	5° <b>II</b> 45'20	9°00'27
minimum elong	-3730 Jun 15 j 07:25	22° <b>8</b> 34'14	5°29'53	minimum elong	-3722 Jun 28 j 21:52	5° <b>II</b> 45'19	9°00'35



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 12

Attention, astronomical year style is used: The year -3722 in astronomical counting style is the year 3723 BCE in historical counting style.

retrograde	-3722 Oct 08 j 16:11	7°II51'13		direct	-3713 Mar 31 j 20:25	20°II26'42	
opposition	-3722 Dec 25 j 16:02	6°II37'42	9°45'38	max. Earth dist.	-3713 Jul 13 j 06:37	22°II41'42	33.99500 AU
min. Earth dist.	-3722 Dec 28 j 20:11	6°II33'00	34.06358 AU				
direct	-3721 Mar 17 j 02:29	5°II21'09		conjunction	-3713 Jul 16 j 15:50	22°II48'49	12°45'20
max. Earth dist.	-3721 Jun 27 j 12:11	7°II24'34	35.90996 AU	minimum elong	-3713 Jul 16 j 15:25	22°II48'47	12°45'28
				retrograde	-3713 Oct 26 j 20:09	25°II06'58	
conjunction	-3721 Jun 30 j 23:46	7°II31'19	9°26'37	opposition	-3712 Jan 12 j 01:50	23°II49'50	13°44'44
minimum elong	-3721 Jun 30 j 23:26	7°II31'17	9°26'45	min. Earth dist.	-3712 Jan 15 j 04:01	23°II45'00	31.93584 AU
retrograde	-3721 Oct 10 j 18:36	9°II38'26		direct	-3712 Apr 02 j 00:23	22°II29'13	
opposition	-3721 Dec 27 j 16:18	8°II24'30	10°13'27	max. Earth dist.	-3712 Jul 14 j 16:39	24°II45'48	33.76896 AU
min. Earth dist.	-3721 Dec 30 j 19:19	8°II19'50	33.81433 AU				
direct	-3720 Mar 18 j 02:18	7°II07'27		conjunction	-3712 Jul 18 j 00:27	24°II52'51	13°08'06
max. Earth dist.	-3720 Jun 28 j 14:04	9°II12'10	35.65950 AU	minimum elong	-3712 Jul 18 j 00:03	24°II52'49	13°08'14
				retrograde	-3712 Oct 28 j 05:57	27°II12'25	
conjunction	-3720 Jul 02 j 02:08	9°II19'01	9°52'35	opposition	-3711 Jan 13 j 10:00	25°II54'51	14°08'54
minimum elong	-3720 Jul 02 j 01:48	9°II18'59	9°52'43	min. Earth dist.	-3711 Jan 16 j 10:41	25°II50'05	31.71478 AU
retrograde	-3720 Oct 11 j 22:47	11°II27'26		direct	-3711 Apr 04 j 08:16	24°II33'47	
opposition	-3720 Dec 28 j 17:38	10°II13'03	10°41'05	max. Earth dist.	-3711 Jul 17 j 01:40	26°II51'47	33.54676 AU
min. Earth dist.	-3720 Dec 31 j 21:17	10°II08'20	33.56839 AU				
direct	-3719 Mar 20 j 01:41	8°II55'33		conjunction	-3711 Jul 20 j 09:36	26°II58'55	13°30'11
max. Earth dist.	-3719 Jun 30 j 18:34	11°II01'45	35.41250 AU	minimum elong	-3711 Jul 20 j 09:11	26°II58'53	13°30'20
				retrograde	-3711 Oct 30 j 17:56	29°II19'54	
conjunction	-3719 Jul 04 j 05:06	11°II08'32	10°18'20	opposition	-3710 Jan 15 j 19:04	28°II01'54	14°32'19
minimum elong	-3719 Jul 04 j 04:44	11°II08'31	10°18'28	min. Earth dist.	-3710 Jan 18 j 19:43	27°II57'06	31.49810 AU
retrograde	-3719 Oct 14 j 03:15	13°II18'17		direct	-3710 Apr 06 j 16:04	26°II40'21	
opposition	-3719 Dec 30 j 19:40	12°II03'31	11°08'28	max. Earth dist.	-3710 Jul 19 j 14:01	29°II00'00	33.32932 AU
min. Earth dist.	-3718 Jan 02 j 22:12	11°II58'50	33.32597 AU				
direct	-3718 Mar 22 j 04:15	10°II45'33		conjunction	-3710 Jul 22 j 19:40	29°II06'59	13°51'31
max. Earth dist.	-3718 Jul 02 j 21:40	12°II53'07	35.16899 AU	minimum elong	-3710 Jul 22 j 19:17	29°II06'57	13°51'40
					-3710 Aug 16 j 20:32	0°☾	
conjunction	-3718 Jul 06 j 08:49	13°II00'01	10°43'48	retrograde	-3710 Nov 02 j 05:14	1°☾29'22	
minimum elong	-3718 Jul 06 j 08:27	13°II00'00	10°43'56	opposition	-3709 Jan 18 j 04:52	0°☾10'56	14°54'54
retrograde	-3718 Oct 16 j 09:06	15°II11'08		min. Earth dist.	-3709 Jan 21 j 04:16	0°☾06'11	31.28647 AU
opposition	-3717 Jan 01 j 22:22	13°II55'58	11°35'33		-3709 Jan 25 j 01:55	30°☾II	
min. Earth dist.	-3717 Jan 05 j 01:10	13°II51'14	33.08716 AU	direct	-3709 Apr 09 j 02:52	28°II48'55	
direct	-3717 Mar 24 j 04:59	12°II37'34			-3709 Jun 18 j 02:31	0°☾	
max. Earth dist.	-3717 Jul 05 j 03:39	14°II46'41	34.92872 AU	max. Earth dist.	-3709 Jul 22 j 00:58	1°☾10'01	33.11750 AU
conjunction	-3717 Jul 08 j 13:29	14°II53'33	11°08'56	conjunction	-3709 Jul 25 j 06:21	1°☾17'03	14°12'01
minimum elong	-3717 Jul 08 j 13:06	14°II53'31	11°09'05	minimum elong	-3709 Jul 25 j 05:56	1°☾17'01	14°12'10
retrograde	-3717 Oct 18 j 14:03	17°II06'02		retrograde	-3709 Nov 04 j 18:06	3°☾40'49	
opposition	-3716 Jan 04 j 02:08	15°II50'30	12°02'17	opposition	-3708 Jan 20 j 15:40	2°☾21'58	15°16'32
min. Earth dist.	-3716 Jan 07 j 04:45	15°II45'45	32.85133 AU	min. Earth dist.	-3708 Jan 23 j 13:52	2°☾17'17	31.08092 AU
direct	-3716 Mar 25 j 09:03	14°II31'41		direct	-3708 Apr 10 j 12:05	0°☾59'31	
max. Earth dist.	-3716 Jul 06 j 08:31	16°II42'13	34.69133 AU	max. Earth dist.	-3708 Jul 23 j 14:59	3°☾22'14	32.91207 AU
conjunction	-3716 Jul 09 j 18:47	16°II49'12	11°33'42	conjunction	-3708 Jul 26 j 17:54	3°☾29'07	14°31'34
minimum elong	-3716 Jul 09 j 18:25	16°II49'10	11°33'51	minimum elong	-3708 Jul 26 j 17:32	3°☾29'05	14°31'43
retrograde	-3716 Oct 19 j 21:57	19°II03'05		retrograde	-3708 Nov 06 j 06:13	5°☾54'16	
opposition	-3715 Jan 05 j 06:39	17°II47'10	12°28'38	opposition	-3707 Jan 22 j 03:30	4°☾35'01	15°37'09
min. Earth dist.	-3715 Jan 08 j 08:42	17°II42'26	32.61838 AU	min. Earth dist.	-3707 Jan 25 j 00:37	4°☾30'22	30.88202 AU
direct	-3715 Mar 27 j 11:57	16°II27'55		direct	-3707 Apr 12 j 23:34	3°☾12'10	
max. Earth dist.	-3715 Jul 08 j 15:31	18°II39'58	34.45649 AU	max. Earth dist.	-3707 Jul 26 j 04:18	5°☾36'23	32.71395 AU
conjunction	-3715 Jul 12 j 01:06	18°II46'57	11°58'04	conjunction	-3707 Jul 29 j 06:06	5°☾43'13	14°50'06
minimum elong	-3715 Jul 12 j 00:42	18°II46'55	11°58'13	minimum elong	-3707 Jul 29 j 05:42	5°☾43'11	14°50'15
retrograde	-3715 Oct 22 j 03:35	21°II02'16		retrograde	-3707 Nov 08 j 21:43	8°☾09'45	
opposition	-3714 Jan 07 j 12:18	19°II45'58	12°54'32	opposition	-3706 Jan 24 j 16:04	6°☾50'08	15°56'39
min. Earth dist.	-3714 Jan 10 j 14:54	19°II41'09	32.38803 AU	min. Earth dist.	-3706 Jan 27 j 10:53	6°☾45'37	30.69059 AU
direct	-3714 Mar 29 j 15:05	18°II26'16		direct	-3706 Apr 15 j 10:48	5°☾26'53	
max. Earth dist.	-3714 Jul 10 j 22:52	20°II39'48	34.22440 AU	max. Earth dist.	-3706 Jul 28 j 19:29	7°☾52'42	32.52333 AU
conjunction	-3714 Jul 14 j 07:57	20°II46'50	12°21'58	conjunction	-3706 Jul 31 j 19:06	7°☾59'24	15°07'32
minimum elong	-3714 Jul 14 j 07:34	20°II46'48	12°22'06	minimum elong	-3706 Jul 31 j 18:46	7°☾59'22	15°07'40
retrograde	-3714 Oct 24 j 11:33	23°II03'34		retrograde	-3706 Nov 11 j 10:26	10°☾27'19	
opposition	-3713 Jan 09 j 18:37	21°II46'51	13°19'55	opposition	-3705 Jan 27 j 05:41	9°☾07'20	16°14'55
min. Earth dist.	-3713 Jan 12 j 20:04	21°II42'06	32.16043 AU	min. Earth dist.	-3705 Jan 29 j 23:54	9°☾02'51	30.50653 AU



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 13

Attention, astronomical year style is used: The year -3705 in astronomical counting style is the year 3706 BCE in historical counting style.

direct	-3705 Apr 17 j 21:44	7° <del>5</del> 43'45		conjunction	-3697 Aug 22 j 23:14	29° <del>5</del> 50'08	16°43'02
max. Earth dist.	-3705 Jul 31 j 11:13	10° <del>5</del> 11'06	32.34035 AU	minimum elong	-3697 Aug 22 j 23:06	29° <del>5</del> 50'07	16°43'10
					-3697 Aug 27 j 02:07	0° <del>0</del>	
conjunction	-3705 Aug 03 j 08:53	10° <del>5</del> 17'41	15°23'46	retrograde	-3697 Dec 04 j 03:54	2° <del>0</del> 28'13	
minimum elong	-3705 Aug 03 j 08:31	10° <del>5</del> 17'39	15°23'55	opposition	-3696 Feb 18 j 21:29	1° <del>0</del> 05'30	17°52'20
retrograde	-3705 Nov 14 j 01:32	12° <del>5</del> 46'56		min. Earth dist.	-3696 Feb 20 j 22:19	1° <del>0</del> 02'05	29.17999 AU
opposition	-3704 Jan 29 j 19:58	11° <del>5</del> 26'38	16°31'54		-3696 Apr 03 j 02:56	30° <del>0</del> 00'	
min. Earth dist.	-3704 Feb 01 j 11:42	11° <del>5</del> 22'18	30.32981 AU	direct	-3696 May 09 j 03:17	29° <del>5</del> 39'25	
direct	-3704 Apr 19 j 11:06	10° <del>5</del> 02'44			-3696 Jun 13 j 03:45	0° <del>0</del>	
max. Earth dist.	-3704 Aug 02 j 03:19	12° <del>5</del> 31'32	32.16463 AU	max. Earth dist.	-3696 Aug 22 j 17:01	2° <del>0</del> 18'07	31.03533 AU
conjunction	-3704 Aug 04 j 23:30	12° <del>5</del> 38'02	15°38'46	conjunction	-3696 Aug 24 j 18:07	2° <del>0</del> 23'02	16°45'31
minimum elong	-3704 Aug 04 j 23:11	12° <del>5</del> 38'00	15°38'55	minimum elong	-3696 Aug 24 j 18:02	2° <del>0</del> 23'02	16°45'38
retrograde	-3704 Nov 15 j 17:27	15° <del>5</del> 08'37		retrograde	-3696 Dec 06 j 01:42	5° <del>0</del> 01'53	
opposition	-3703 Jan 31 j 11:29	13° <del>5</del> 48'00	16°47'32	opposition	-3695 Feb 20 j 18:38	3° <del>0</del> 38'57	17°54'15
min. Earth dist.	-3703 Feb 03 j 02:40	13° <del>5</del> 43'41	30.16022 AU	min. Earth dist.	-3695 Feb 22 j 15:33	3° <del>0</del> 35'48	29.07575 AU
direct	-3703 Apr 21 j 22:34	12° <del>5</del> 23'47		direct	-3695 May 12 j 00:09	2° <del>0</del> 12'43	
max. Earth dist.	-3703 Aug 04 j 21:06	14° <del>5</del> 54'06	31.99621 AU	max. Earth dist.	-3695 Aug 25 j 15:51	4° <del>0</del> 52'23	30.93638 AU
conjunction	-3703 Aug 07 j 14:41	15° <del>5</del> 00'24	15°52'27	conjunction	-3695 Aug 27 j 13:17	4° <del>0</del> 56'58	16°46'07
minimum elong	-3703 Aug 07 j 14:22	15° <del>5</del> 00'22	15°52'36	minimum elong	-3695 Aug 27 j 13:14	4° <del>0</del> 56'57	16°46'15
retrograde	-3703 Nov 18 j 09:59	17° <del>5</del> 32'16		retrograde	-3695 Dec 08 j 21:42	7° <del>0</del> 36'31	
opposition	-3702 Feb 03 j 03:46	16° <del>5</del> 11'20	17°01'43	opposition	-3694 Feb 23 j 16:22	6° <del>0</del> 13'23	17°54'07
min. Earth dist.	-3702 Feb 05 j 16:23	16° <del>5</del> 07'10	29.99754 AU	min. Earth dist.	-3694 Feb 25 j 11:15	6° <del>0</del> 10'22	28.98255 AU
direct	-3702 Apr 24 j 14:23	14° <del>5</del> 46'49		direct	-3694 May 14 j 19:38	4° <del>0</del> 47'03	
max. Earth dist.	-3702 Aug 07 j 14:06	17° <del>5</del> 18'26	31.83484 AU	max. Earth dist.	-3694 Aug 28 j 14:46	7° <del>0</del> 27'34	30.84916 AU
conjunction	-3702 Aug 10 j 06:41	17° <del>5</del> 24'41	16°04'46	conjunction	-3694 Aug 30 j 08:47	7° <del>0</del> 31'50	16°44'48
minimum elong	-3702 Aug 10 j 06:25	17° <del>5</del> 24'40	16°04'54	minimum elong	-3694 Aug 30 j 08:48	7° <del>0</del> 31'50	16°44'54
retrograde	-3702 Nov 21 j 03:48	19° <del>5</del> 57'46		retrograde	-3694 Dec 11 j 18:22	10° <del>0</del> 11'59	
opposition	-3701 Feb 05 j 20:48	18° <del>5</del> 36'31	17°14'24	opposition	-3693 Feb 26 j 14:15	8° <del>0</del> 48'44	17°51'53
min. Earth dist.	-3701 Feb 08 j 08:28	18° <del>5</del> 32'25	29.84187 AU	min. Earth dist.	-3693 Feb 28 j 04:54	8° <del>0</del> 46'00	28.90069 AU
direct	-3701 Apr 27 j 05:18	17° <del>5</del> 11'42		direct	-3693 May 17 j 17:39	7° <del>0</del> 22'20	
max. Earth dist.	-3701 Aug 10 j 09:55	19° <del>5</del> 44'46	31.68076 AU	max. Earth dist.	-3693 Aug 31 j 13:43	10° <del>0</del> 20'37	30.77353 AU
conjunction	-3701 Aug 12 j 23:28	19° <del>5</del> 50'46	16°15'37	conjunction	-3693 Sep 02 j 04:36	10° <del>0</del> 20'34	16°41'32
minimum elong	-3701 Aug 12 j 23:12	19° <del>5</del> 50'45	16°15'45	minimum elong	-3693 Sep 02 j 04:38	10° <del>0</del> 20'34	16°41'39
retrograde	-3701 Nov 23 j 21:28	22° <del>5</del> 25'00		retrograde	-3693 Dec 14 j 15:20	12° <del>0</del> 48'15	
opposition	-3700 Feb 08 j 14:48	21° <del>5</del> 03'27	17°25'30	opposition	-3692 Feb 29 j 12:50	11° <del>0</del> 24'54	17°47'33
min. Earth dist.	-3700 Feb 11 j 00:16	20° <del>5</del> 59'28	29.69320 AU	min. Earth dist.	-3692 Mar 02 j 01:15	11° <del>0</del> 22'20	28.83014 AU
direct	-3700 Apr 28 j 23:15	19° <del>5</del> 38'20		direct	-3692 May 19 j 13:14	9° <del>0</del> 58'30	
max. Earth dist.	-3700 Aug 12 j 04:14	22° <del>5</del> 12'34	31.53416 AU	max. Earth dist.	-3692 Sep 02 j 13:35	12° <del>0</del> 40'29	30.70953 AU
conjunction	-3700 Aug 14 j 16:37	22° <del>5</del> 18'30	16°24'56	conjunction	-3692 Sep 04 j 00:28	12° <del>0</del> 44'03	16°36'18
minimum elong	-3700 Aug 14 j 16:25	22° <del>5</del> 18'28	16°25'04	minimum elong	-3692 Sep 04 j 00:34	12° <del>0</del> 44'03	16°36'24
retrograde	-3700 Nov 25 j 17:15	24° <del>5</del> 53'49			-3692 Nov 09 j 01:08	15° <del>0</del>	
opposition	-3699 Feb 10 j 09:30	23° <del>5</del> 31'57	17°34'55	retrograde	-3692 Dec 16 j 12:40	15° <del>0</del> 25'11	
min. Earth dist.	-3699 Feb 12 j 17:07	23° <del>5</del> 28'05	29.55212 AU		-3691 Jan 24 j 09:22	15° <del>0</del> 00'	
direct	-3699 May 01 j 16:03	22° <del>5</del> 06'34		opposition	-3691 Mar 03 j 11:43	14° <del>0</del> 01'45	17°41'05
max. Earth dist.	-3699 Aug 15 j 01:31	24° <del>5</del> 42'06	31.39560 AU	min. Earth dist.	-3691 Mar 04 j 20:05	13° <del>0</del> 59'28	28.77056 AU
				direct	-3691 May 22 j 11:17	12° <del>0</del> 35'23	
conjunction	-3699 Aug 17 j 10:30	24° <del>5</del> 47'44	16°32'40		-3691 Aug 29 j 04:48	15° <del>0</del>	
minimum elong	-3699 Aug 17 j 10:18	24° <del>5</del> 47'43	16°32'49				
retrograde	-3699 Nov 28 j 12:14	27° <del>5</del> 24'03		conjunction	-3691 Sep 06 j 20:33	15° <del>0</del> 21'08	16°29'07
opposition	-3698 Feb 13 j 04:55	26° <del>5</del> 01'53	17°42'35	minimum elong	-3691 Sep 06 j 20:40	15° <del>0</del> 21'09	16°29'14
min. Earth dist.	-3698 Feb 15 j 10:35	25° <del>5</del> 58'09	29.41902 AU	max. Earth dist.	-3691 Sep 05 j 12:21	15° <del>0</del> 17'51	30.65663 AU
direct	-3698 May 04 j 12:01	24° <del>5</del> 36'15		retrograde	-3691 Dec 19 j 09:37	18° <del>0</del> 02'37	
max. Earth dist.	-3698 Aug 17 j 21:15	27° <del>5</del> 12'49	31.26579 AU	opposition	-3690 Mar 06 j 10:49	16° <del>0</del> 39'08	17°32'31
				min. Earth dist.	-3690 Mar 07 j 16:43	16° <del>0</del> 37'01	28.72179 AU
conjunction	-3698 Aug 20 j 04:35	27° <del>5</del> 18'19	16°38'43	direct	-3690 May 25 j 08:28	15° <del>0</del> 12'49	
minimum elong	-3698 Aug 20 j 04:26	27° <del>5</del> 18'18	16°38'51				
retrograde	-3698 Dec 01 j 09:01	29° <del>5</del> 55'34		conjunction	-3690 Sep 09 j 16:47	17° <del>0</del> 58'39	16°20'00
opposition	-3697 Feb 16 j 00:50	28° <del>5</del> 33'06	17°48'25	minimum elong	-3690 Sep 09 j 16:57	17° <del>0</del> 58'40	16°20'06
min. Earth dist.	-3697 Feb 18 j 03:33	28° <del>5</del> 29'34	29.29476 AU	max. Earth dist.	-3690 Sep 08 j 12:51	17° <del>0</del> 55'47	30.61469 AU
direct	-3697 May 07 j 07:34	27° <del>5</del> 07'14		retrograde	-3690 Dec 22 j 06:13	20° <del>0</del> 40'20	
max. Earth dist.	-3697 Aug 20 j 19:30	29° <del>5</del> 44'58	31.14534 AU	opposition	-3689 Mar 09 j 10:09	19° <del>0</del> 16'49	17°21'53
				min. Earth dist.	-3689 Mar 10 j 12:37	19° <del>0</del> 14'58	28.68327 AU



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 14

Attention, astronomical year style is used: The year -3689 in astronomical counting style is the year 3690 BCE in historical counting style.

direct	-3689 May 28 j 07:34	17° $\Omega$ 50'35		direct	-3681 Jun 18 j 23:06	8° $\mp$ 38'58	
max. Earth dist.	-3689 Sep 11 j 11:16	20° $\Omega$ 33'44	30.58322 AU				
conjunction	-3689 Sep 12 j 12:54	20° $\Omega$ 36'22	16°08'58	conjunction	-3681 Oct 02 j 21:21	11° $\mp$ 20'05	13°36'17
minimum elong	-3689 Sep 12 j 13:06	20° $\Omega$ 36'23	16°09'05	minimum elong	-3681 Oct 02 j 21:45	11° $\mp$ 20'07	13°36'21
retrograde	-3689 Dec 25 j 04:24	23° $\Omega$ 18'10		max. Earth dist.	-3681 Oct 03 j 01:09	11° $\mp$ 20'28	30.72511 AU
opposition	-3688 Mar 11 j 09:36	21° $\Omega$ 54'37	17°09'11	retrograde	-3680 Jan 14 j 20:05	13° $\mp$ 58'52	
min. Earth dist.	-3688 Mar 12 j 08:58	21° $\Omega$ 52'59	28.65500 AU	opposition	-3680 Apr 01 j 23:25	12° $\mp$ 35'43	14°18'42
direct	-3688 May 30 j 04:47	20° $\Omega$ 28'27		min. Earth dist.	-3680 Apr 01 j 18:01	12° $\mp$ 36'05	28.81691 AU
max. Earth dist.	-3688 Sep 13 j 11:54	23° $\Omega$ 11'53	30.56224 AU	direct	-3680 Jun 20 j 21:44	11° $\mp$ 11'00	
conjunction	-3688 Sep 14 j 09:09	23° $\Omega$ 14'04	15°56'03	conjunction	-3680 Oct 04 j 14:26	13° $\mp$ 51'09	13°09'59
minimum elong	-3688 Sep 14 j 09:24	23° $\Omega$ 14'05	15°56'08	minimum elong	-3680 Oct 04 j 14:50	13° $\mp$ 51'12	13°10'02
retrograde	-3688 Dec 27 j 00:37	25° $\Omega$ 55'50		max. Earth dist.	-3680 Oct 04 j 21:37	13° $\mp$ 51'52	30.79594 AU
opposition	-3687 Mar 14 j 09:12	24° $\Omega$ 32'17	16°54'27	retrograde	-3679 Jan 16 j 13:09	16° $\mp$ 29'14	
min. Earth dist.	-3687 Mar 15 j 05:31	24° $\Omega$ 30'51	28.63677 AU	opposition	-3679 Apr 04 j 20:35	15° $\mp$ 06'17	13°49'45
direct	-3687 Jun 02 j 05:11	23° $\Omega$ 06'13		min. Earth dist.	-3679 Apr 04 j 12:08	15° $\mp$ 06'52	28.88970 AU
max. Earth dist.	-3687 Sep 16 j 10:00	25° $\Omega$ 49'34	30.55171 AU	direct	-3679 Jun 23 j 17:20	13° $\mp$ 41'55	
conjunction	-3687 Sep 17 j 04:58	25° $\Omega$ 51'30	15°41'17	conjunction	-3679 Oct 07 j 07:02	16° $\mp$ 21'02	12°42'21
minimum elong	-3687 Sep 17 j 05:15	25° $\Omega$ 51'32	15°41'23	minimum elong	-3679 Oct 07 j 07:28	16° $\mp$ 21'05	12°42'24
retrograde	-3687 Dec 29 j 22:41	28° $\Omega$ 33'09		max. Earth dist.	-3679 Oct 07 j 18:25	16° $\mp$ 22'10	30.87820 AU
opposition	-3686 Mar 17 j 08:34	27° $\Omega$ 09'35	16°37'45	retrograde	-3678 Jan 19 j 05:23	18° $\mp$ 58'19	
min. Earth dist.	-3686 Mar 18 j 01:07	27° $\Omega$ 08'25	28.62884 AU	opposition	-3678 Apr 07 j 17:07	17° $\mp$ 35'37	13°19'26
direct	-3686 Jun 05 j 04:25	25° $\Omega$ 43'37		min. Earth dist.	-3678 Apr 07 j 04:58	17° $\mp$ 36'27	28.97329 AU
max. Earth dist.	-3686 Sep 19 j 10:13	28° $\Omega$ 26'59	30.55172 AU	direct	-3678 Jun 26 j 14:33	16° $\mp$ 11'36	
conjunction	-3686 Sep 20 j 00:49	28° $\Omega$ 28'28	15°24'43	conjunction	-3678 Oct 09 j 23:02	18° $\mp$ 49'38	12°13'31
minimum elong	-3686 Sep 20 j 01:07	28° $\Omega$ 28'30	15°24'47	minimum elong	-3678 Oct 09 j 23:27	18° $\mp$ 49'41	12°13'32
retrograde	-3686 Oct 29 j 17:37	0° $\mp$		max. Earth dist.	-3678 Oct 10 j 12:54	18° $\mp$ 51'01	30.97091 AU
opposition	-3685 Jan 01 j 17:54	1° $\mp$ 09'51		retrograde	-3677 Jan 21 j 22:41	21° $\mp$ 26'05	
min. Earth dist.	-3685 Mar 12 j 02:54	30° $\mathbb{R}$ $\Omega$		opposition	-3677 Apr 10 j 13:04	20° $\mp$ 03'38	12°47'52
direct	-3685 Mar 20 j 07:46	29° $\Omega$ 46'17	16°19'06	min. Earth dist.	-3677 Apr 09 j 21:35	20° $\mp$ 04'41	29.06717 AU
max. Earth dist.	-3685 Mar 20 j 21:46	29° $\Omega$ 45'18	28.63127 AU	direct	-3677 Jun 29 j 08:30	18° $\mp$ 40'00	
retrograde	-3685 Jun 08 j 03:12	28° $\Omega$ 20'27		conjunction	-3677 Oct 12 j 14:39	21° $\mp$ 16'53	11°43'34
conjunction	-3685 Aug 26 j 14:07	0° $\mp$		minimum elong	-3677 Oct 12 j 15:05	21° $\mp$ 16'56	11°43'36
opposition	-3685 Sep 22 j 20:09	1° $\mp$ 04'44	15°06'21	max. Earth dist.	-3677 Oct 13 j 08:39	21° $\mp$ 18'40	31.07353 AU
minimum elong	-3685 Sep 22 j 20:29	1° $\mp$ 04'46	15°06'26	retrograde	-3676 Jan 24 j 13:17	23° $\mp$ 52'27	
max. Earth dist.	-3685 Sep 22 j 08:16	1° $\mp$ 03'31	30.56270 AU	opposition	-3676 Apr 12 j 08:39	22° $\mp$ 30'14	12°15'11
retrograde	-3684 Jan 04 j 15:44	3° $\mp$ 45'46		min. Earth dist.	-3676 Apr 11 j 14:21	22° $\mp$ 31'29	29.17050 AU
opposition	-3684 Mar 22 j 06:46	2° $\mp$ 22'12	15°58'34	direct	-3676 Jul 01 j 04:57	21° $\mp$ 07'00	
min. Earth dist.	-3684 Mar 22 j 16:21	2° $\mp$ 21'32	28.64472 AU	conjunction	-3676 Oct 14 j 05:25	23° $\mp$ 42'41	11°12'38
direct	-3684 Jun 10 j 03:31	0° $\mp$ 56'30		minimum elong	-3676 Oct 14 j 05:49	23° $\mp$ 42'43	11°12'39
conjunction	-3684 Sep 24 j 15:05	3° $\mp$ 40'08	14°46'17	max. Earth dist.	-3676 Oct 15 j 01:24	23° $\mp$ 44'38	31.18532 AU
minimum elong	-3684 Sep 24 j 15:26	3° $\mp$ 40'10	14°46'20	retrograde	-3675 Jan 26 j 05:39	26° $\mp$ 17'18	
max. Earth dist.	-3684 Sep 24 j 07:43	3° $\mp$ 39'23	30.58506 AU	min. Earth dist.	-3675 Apr 14 j 05:34	24° $\mp$ 56'49	29.28289 AU
retrograde	-3683 Jan 06 j 10:45	6° $\mp$ 20'43		opposition	-3675 Apr 15 j 03:32	24° $\mp$ 55'20	11°41'30
opposition	-3683 Mar 25 j 05:40	4° $\mp$ 57'11	15°36'11	direct	-3675 Jul 03 j 22:44	23° $\mp$ 32'29	
min. Earth dist.	-3683 Mar 25 j 12:32	4° $\mp$ 56'42	28.66968 AU	conjunction	-3675 Oct 16 j 19:52	26° $\mp$ 06'54	10°40'48
direct	-3683 Jun 13 j 02:33	3° $\mp$ 31'40		minimum elong	-3675 Oct 16 j 20:16	26° $\mp$ 06'57	10°40'49
conjunction	-3683 Sep 27 j 09:37	6° $\mp$ 14'32	14°24'31	max. Earth dist.	-3675 Oct 17 j 19:46	26° $\mp$ 09'14	31.30572 AU
minimum elong	-3683 Sep 27 j 10:00	6° $\mp$ 14'34	14°24'36	retrograde	-3674 Jan 28 j 18:59	28° $\mp$ 40'30	
max. Earth dist.	-3683 Sep 27 j 05:36	6° $\mp$ 14'07	30.61948 AU	opposition	-3674 Apr 17 j 21:38	27° $\mp$ 18'48	11°06'54
retrograde	-3682 Jan 09 j 06:37	8° $\mp$ 54'34		min. Earth dist.	-3674 Apr 16 j 21:44	27° $\mp$ 20'24	29.40366 AU
opposition	-3682 Mar 28 j 03:51	7° $\mp$ 31'08	15°12'01	direct	-3674 Jul 06 j 16:26	25° $\mp$ 56'19	
min. Earth dist.	-3682 Mar 28 j 05:53	7° $\mp$ 30'59	28.70666 AU	conjunction	-3674 Oct 19 j 09:27	28° $\mp$ 29'26	10°08'11
direct	-3682 Jun 16 j 01:39	6° $\mp$ 05'50		minimum elong	-3674 Oct 19 j 09:50	28° $\mp$ 29'28	10°08'12
conjunction	-3682 Sep 30 j 03:45	8° $\mp$ 47'52	14°01'10	max. Earth dist.	-3674 Oct 20 j 11:11	28° $\mp$ 31'55	31.43438 AU
minimum elong	-3682 Sep 30 j 04:08	8° $\mp$ 47'54	14°01'13	retrograde	-3674 Nov 30 j 05:25	0° $\underline{\Omega}$	
max. Earth dist.	-3682 Sep 30 j 03:43	8° $\mp$ 47'51	30.66612 AU	retrograde	-3673 Jan 31 j 10:20	1° $\underline{\Omega}$ 01'58	
retrograde	-3681 Jan 12 j 01:12	11° $\mp$ 27'18		min. Earth dist.	-3673 Apr 08 j 08:37	30° $\mathbb{R}$ $\Omega$	
opposition	-3681 Mar 31 j 01:55	10° $\mp$ 03'59	14°46'09	opposition	-3673 Apr 19 j 11:11	29° $\mp$ 42'22	29.53268 AU
min. Earth dist.	-3681 Mar 31 j 01:04	10° $\mp$ 04'03	28.75581 AU	direct	-3673 Apr 20 j 15:01	29° $\mp$ 40'31	10°31'32
					-3673 Jul 09 j 10:31	28° $\mp$ 18'24	



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 15

Attention, astronomical year style is used: The year -3673 in astronomical counting style is the year 3674 BCE in historical counting style.

	-3673 Sep 29 j 17:11	0°♂		minimum elong	-3665 Nov 08 j 02:38	18°♂28'23	4°53'55
				max. Earth dist.	-3665 Nov 10 j 04:33	18°♂32'53	32.96415 AU
conjunction	-3673 Oct 21 j 22:17	0°♂50'10	9°34'53	retrograde	-3664 Feb 20 j 03:23	20°♂50'28	
minimum elong	-3673 Oct 21 j 22:41	0°♂50'12	9°34'54	min. Earth dist.	-3664 May 08 j 12:25	19°♂35'03	31.07252 AU
max. Earth dist.	-3673 Oct 23 j 03:40	0°♂52'59	31.57103 AU	opposition	-3664 May 10 j 16:55	19°♂31'42	4°53'45
retrograde	-3672 Feb 02 j 23:32	3°♂21'36		direct	-3664 Jul 29 j 16:44	18°♂13'20	
min. Earth dist.	-3672 Apr 21 j 02:07	2°♂02'21	29.66992 AU				
opposition	-3672 Apr 22 j 07:51	2°♂00'22	9°55'29	conjunction	-3664 Nov 09 j 09:00	20°♂32'37	4°18'17
direct	-3672 Jul 11 j 04:22	0°♂38'38		minimum elong	-3664 Nov 09 j 09:10	20°♂32'38	4°18'14
				max. Earth dist.	-3664 Nov 11 j 13:55	20°♂37'21	33.16996 AU
conjunction	-3672 Oct 23 j 10:22	3°♂09'01	9°00'58	retrograde	-3663 Feb 21 j 10:23	22°♂53'34	
minimum elong	-3672 Oct 23 j 10:44	3°♂09'03	9°00'58	min. Earth dist.	-3663 May 10 j 21:18	21°♂38'31	31.27915 AU
max. Earth dist.	-3672 Oct 24 j 18:06	3°♂12'02	31.71601 AU	opposition	-3663 May 13 j 02:42	21°♂35'09	4°15'44
retrograde	-3671 Feb 04 j 12:40	5°♂39'17		direct	-3663 Aug 01 j 02:05	20°♂17'12	
opposition	-3671 Apr 24 j 23:39	4°♂18'18	9°18'50				
min. Earth dist.	-3671 Apr 23 j 13:57	4°♂20'32	29.81570 AU	conjunction	-3663 Nov 11 j 14:51	22°♂35'09	3°42'45
direct	-3671 Jul 13 j 21:27	2°♂56'56		minimum elong	-3663 Nov 11 j 15:01	22°♂35'10	3°42'42
				max. Earth dist.	-3663 Nov 13 j 20:59	22°♂39'57	33.38046 AU
conjunction	-3671 Oct 25 j 21:38	5°♂25'55	8°26'33	retrograde	-3662 Feb 23 j 17:14	24°♂54'55	
minimum elong	-3671 Oct 25 j 21:59	5°♂25'57	8°26'32	min. Earth dist.	-3662 May 13 j 03:31	23°♂40'22	31.49016 AU
max. Earth dist.	-3671 Oct 27 j 08:29	5°♂29'12	31.86941 AU	opposition	-3662 May 15 j 11:36	23°♂36'50	3°37'55
retrograde	-3670 Feb 06 j 23:32	7°♂55'01		direct	-3662 Aug 03 j 11:31	22°♂19'18	
min. Earth dist.	-3670 Apr 26 j 02:57	6°♂36'40	29.97036 AU				
opposition	-3670 Apr 27 j 14:48	6°♂34'18	8°41'42	conjunction	-3662 Nov 13 j 20:00	24°♂35'55	3°07'24
direct	-3670 Jul 16 j 12:50	5°♂13'19		minimum elong	-3662 Nov 13 j 20:08	24°♂35'56	3°07'20
				max. Earth dist.	-3662 Nov 16 j 03:50	24°♂40'49	33.59473 AU
conjunction	-3670 Oct 28 j 08:15	7°♂40'53	7°51'41	retrograde	-3661 Feb 25 j 22:27	26°♂54'31	
minimum elong	-3670 Oct 28 j 08:33	7°♂40'55	7°51'40	min. Earth dist.	-3661 May 15 j 10:48	25°♂40'19	31.70518 AU
max. Earth dist.	-3670 Oct 29 j 22:09	7°♂44'26	32.03164 AU	opposition	-3661 May 17 j 19:56	25°♂36'45	3°00'22
retrograde	-3669 Feb 09 j 10:11	10°♂08'48		direct	-3661 Aug 05 j 20:24	24°♂19'38	
min. Earth dist.	-3669 Apr 28 j 13:35	8°♂50'57	30.13388 AU				
opposition	-3669 Apr 30 j 04:57	8°♂48'22	8°04'09	conjunction	-3661 Nov 16 j 00:37	26°♂34'54	2°32'17
direct	-3669 Jul 19 j 05:39	7°♂27'47		minimum elong	-3661 Nov 16 j 00:43	26°♂34'55	2°32'14
				max. Earth dist.	-3661 Nov 18 j 10:24	26°♂39'57	33.81275 AU
conjunction	-3669 Oct 30 j 18:03	9°♂53'58	7°16'29	retrograde	-3660 Feb 28 j 02:10	28°♂52'20	
minimum elong	-3669 Oct 30 j 18:22	9°♂54'00	7°16'28	min. Earth dist.	-3660 May 16 j 16:23	27°♂38'33	31.92392 AU
max. Earth dist.	-3669 Nov 01 j 10:23	9°♂57'43	32.20257 AU	opposition	-3660 May 19 j 03:25	27°♂34'52	2°23'07
retrograde	-3668 Feb 11 j 20:29	12°♂20'43		direct	-3660 Aug 07 j 06:38	26°♂18'08	
min. Earth dist.	-3668 Apr 30 j 00:21	11°♂03'20	30.30641 AU				
opposition	-3668 May 01 j 18:34	11°♂00'35	7°26'19	conjunction	-3660 Nov 17 j 04:16	28°♂32'05	1°57'27
direct	-3668 Jul 20 j 18:38	9°♂40'26		minimum elong	-3660 Nov 17 j 04:21	28°♂32'06	1°57'23
				max. Earth dist.	-3660 Nov 19 j 15:05	28°♂37'10	34.03429 AU
conjunction	-3668 Nov 01 j 03:12	12°♂05'12	6°41'02		-3659 Jan 02 j 06:45	0°♂	
minimum elong	-3668 Nov 01 j 03:28	12°♂05'14	6°41'00	retrograde	-3659 Mar 01 j 06:22	0°♂48'21	
max. Earth dist.	-3668 Nov 02 j 23:04	12°♂09'16	32.38206 AU		-3659 May 01 j 13:13	30°♂	
retrograde	-3667 Feb 13 j 03:29	14°♂30'48		min. Earth dist.	-3659 May 18 j 21:14	29°♂34'57	32.14672 AU
min. Earth dist.	-3667 May 02 j 10:33	13°♂13'54	30.48720 AU	opposition	-3659 May 21 j 10:12	29°♂31'11	1°46'13
opposition	-3667 May 04 j 07:20	13°♂11'00	6°48'16	direct	-3659 Aug 09 j 13:24	28°♂14'49	
direct	-3667 Jul 23 j 08:46	11°♂51'17			-3659 Nov 05 j 20:54	0°♂	
conjunction	-3667 Nov 03 j 11:36	14°♂14'40	6°05'24	conjunction	-3659 Nov 19 j 07:29	0°♂27'28	1°22'58
minimum elong	-3667 Nov 03 j 11:52	14°♂14'41	6°05'22	minimum elong	-3659 Nov 19 j 07:33	0°♂27'28	1°22'54
max. Earth dist.	-3667 Nov 05 j 09:02	14°♂18'50	32.56932 AU	max. Earth dist.	-3659 Nov 21 j 20:55	0°♂32'44	34.25975 AU
retrograde	-3666 Feb 15 j 12:15	16°♂39'05		retrograde	-3658 Mar 03 j 06:36	2°♂42'35	
min. Earth dist.	-3666 May 04 j 19:17	15°♂22'43	30.67577 AU	min. Earth dist.	-3658 May 21 j 01:56	1°♂29'32	32.37369 AU
opposition	-3666 May 06 j 19:08	15°♂19'38	6°10'05	opposition	-3658 May 23 j 15:59	1°♂25'43	1°09'44
direct	-3666 Jul 25 j 19:23	14°♂00'21		direct	-3658 Aug 11 j 21:08	0°♂09'43	
conjunction	-3666 Nov 05 j 19:29	16°♂22'23	5°29'41	conjunction	-3658 Nov 21 j 09:51	2°♂21'06	0°48'50
minimum elong	-3666 Nov 05 j 19:42	16°♂22'24	5°29'39	minimum elong	-3658 Nov 21 j 09:53	2°♂21'06	0°48'45
max. Earth dist.	-3666 Nov 07 j 20:19	16°♂26'49	32.76363 AU	max. Earth dist.	-3658 Nov 23 j 23:58	2°♂26'23	34.48943 AU
retrograde	-3665 Feb 17 j 18:58	18°♂45'38		retrograde	-3657 Mar 05 j 09:16	4°♂35'06	
min. Earth dist.	-3665 May 07 j 05:09	17°♂29'41	30.87111 AU	min. Earth dist.	-3657 May 23 j 04:26	3°♂22'30	32.60535 AU
opposition	-3665 May 09 j 06:25	17°♂26'32	5°31'54	opposition	-3657 May 25 j 21:11	3°♂18'33	0°33'41
direct	-3665 Jul 28 j 06:42	16°♂07'43		direct	-3657 Aug 14 j 01:23	2°♂02'56	
conjunction	-3665 Nov 08 j 02:26	18°♂28'21	4°53'57	conjunction	-3657 Nov 23 j 11:36	4°♂13'04	0°15'09



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 16

Attention, astronomical year style is used: The year -3657 in astronomical counting style is the year 3658 BCE in historical counting style.

minimum elong	-3657 Nov 23 j 11:36	4°M13'04	0°15'04	min. Earth dist.	-3649 Jun 06 j 14:07	17°M33'05	34.58440 AU
behind sun begin	-3657 Nov 23 j 09:07	4°M12'52		opposition	-3649 Jun 09 j 15:28	17°M28'47	-3°-54'-52
behind sun end	-3657 Nov 23 j 14:05	4°M13'16		direct	-3649 Aug 28 j 22:08	16°M16'20	
max. Earth dist.	-3657 Nov 26 j 04:31	4°M18'33	34.72357 AU				
retrograde	-3656 Mar 06 j 10:17	6°M26'00		conjunction	-3649 Dec 07 j 06:24	18°M17'36	-3°-56'-29
desc. node	-3656 May 07 j 12:18	5°M37'40		minimum elong	-3649 Dec 07 j 06:16	18°M17'35	3°56'36
min. Earth dist.	-3656 May 24 j 08:20	5°M13'44	32.84167 AU	max. Earth dist.	-3649 Dec 10 j 07:39	18°M23'25	36.70665 AU
opposition	-3656 May 27 j 01:50	5°M09'45	0°-1'-52	retrograde	-3648 Mar 20 j 06:21	20°M22'33	
direct	-3656 Aug 15 j 05:16	3°M54'32		min. Earth dist.	-3648 Jun 07 j 12:06	19°M13'21	34.83792 AU
				opposition	-3648 Jun 10 j 15:04	19°M08'59	-4°-25'-40
				direct	-3648 Aug 29 j 21:00	17°M56'51	
conjunction	-3656 Nov 24 j 12:48	6°M03'28	0°-18'-10				
minimum elong	-3656 Nov 24 j 12:47	6°M03'28	0°18'16				
max. Earth dist.	-3656 Nov 27 j 06:42	6°M08'59	34.96220 AU	conjunction	-3648 Dec 08 j 03:30	19°M57'05	-4°-25'-24
retrograde	-3655 Mar 08 j 12:48	8°M15'20		minimum elong	-3648 Dec 08 j 03:21	19°M57'05	4°25'31
min. Earth dist.	-3655 May 26 j 09:17	7°M03'34	33.08245 AU	max. Earth dist.	-3648 Dec 11 j 05:45	20°M02'56	36.95886 AU
opposition	-3655 May 29 j 05:29	6°M59'26	0°-36'-55	retrograde	-3647 Mar 22 j 05:10	22°M01'05	
direct	-3655 Aug 17 j 08:48	5°M44'37		min. Earth dist.	-3647 Jun 09 j 11:16	20°M52'07	35.09167 AU
				opposition	-3647 Jun 12 j 14:02	20°M47'47	-4°-55'-48
				direct	-3647 Aug 31 j 18:13	19°M35'57	
conjunction	-3655 Nov 26 j 13:23	7°M52'24	0°-50'-57				
minimum elong	-3655 Nov 26 j 13:21	7°M52'24	0°51'02				
max. Earth dist.	-3655 Nov 29 j 09:10	7°M58'01	35.20476 AU	conjunction	-3647 Dec 10 j 00:10	21°M35'11	-4°-53'-42
retrograde	-3654 Mar 10 j 15:18	10°M03'13		minimum elong	-3647 Dec 10 j 00:01	21°M35'10	4°53'49
min. Earth dist.	-3654 May 28 j 11:48	8°M51'49	33.32719 AU	max. Earth dist.	-3647 Dec 13 j 03:16	21°M41'02	37.21141 AU
opposition	-3654 May 31 j 08:43	8°M47'40	-1°-11'-24	retrograde	-3646 Mar 24 j 00:37	23°M38'14	
direct	-3654 Aug 19 j 11:19	7°M33'17		min. Earth dist.	-3646 Jun 11 j 08:34	22°M29'34	35.34588 AU
				opposition	-3646 Jun 14 j 12:22	22°M25'11	-5°-25'-15
				direct	-3646 Sep 02 j 18:15	21°M13'39	
conjunction	-3654 Nov 28 j 13:25	9°M39'55	-1°-23'-15				
minimum elong	-3654 Nov 28 j 13:22	9°M39'55	1°23'21				
max. Earth dist.	-3654 Dec 01 j 10:43	9°M45'37	35.45083 AU	conjunction	-3646 Dec 11 j 20:02	23°M11'54	-5°-21'-23
retrograde	-3653 Mar 12 j 15:53	11°M49'43		minimum elong	-3646 Dec 11 j 19:52	23°M11'53	5°21'32
min. Earth dist.	-3653 May 30 j 12:34	10°M38'45	33.57508 AU	max. Earth dist.	-3646 Dec 14 j 23:19	23°M17'44	37.46449 AU
opposition	-3653 Jun 02 j 11:11	10°M34'32	-1°-45'-19	retrograde	-3645 Mar 25 j 20:49	25°M14'01	
direct	-3653 Aug 21 j 14:50	9°M20'33		min. Earth dist.	-3645 Jun 13 j 05:34	24°M05'39	35.60118 AU
				opposition	-3645 Jun 16 j 10:17	24°M01'15	-5°-54'-2
				direct	-3645 Sep 04 j 16:44	22°M50'01	
conjunction	-3653 Nov 30 j 12:53	11°M26'06	-1°-55'-1				
minimum elong	-3653 Nov 30 j 12:49	11°M26'05	1°55'07				
max. Earth dist.	-3653 Dec 03 j 10:55	11°M31'49	35.69953 AU	conjunction	-3645 Dec 13 j 15:44	24°M47'18	-5°-48'-26
retrograde	-3652 Mar 13 j 15:32	13°M34'55		minimum elong	-3645 Dec 13 j 15:33	24°M47'17	5°48'34
min. Earth dist.	-3652 May 31 j 13:24	12°M24'20	33.82566 AU	max. Earth dist.	-3645 Dec 16 j 20:52	24°M53'14	37.71875 AU
opposition	-3652 Jun 03 j 13:13	12°M20'04	-2°-18'-39	retrograde	-3644 Mar 26 j 14:02	26°M48'33	
direct	-3652 Aug 22 j 16:35	11°M06'30		min. Earth dist.	-3644 Jun 14 j 02:43	25°M40'27	35.85769 AU
				opposition	-3644 Jun 17 j 07:37	25°M36'03	-6°-22'-7
				direct	-3644 Sep 05 j 16:34	24°M25'08	
conjunction	-3652 Dec 01 j 12:01	13°M10'57	-2°-26'-14				
minimum elong	-3652 Dec 01 j 11:56	13°M10'57	2°26'21				
max. Earth dist.	-3652 Dec 04 j 12:02	13°M16'48	35.95027 AU	conjunction	-3644 Dec 14 j 10:49	26°M21'29	-6°-14'-52
	-3651 Feb 06 j 19:32	15°M		minimum elong	-3644 Dec 14 j 10:38	26°M21'29	6°15'00
retrograde	-3651 Mar 15 j 12:01	15°M18'47		max. Earth dist.	-3644 Dec 17 j 15:45	26°M27'22	37.97422 AU
	-3651 Apr 22 j 08:09	15°RM		retrograde	-3643 Mar 28 j 09:25	28°M21'53	
min. Earth dist.	-3651 Jun 02 j 14:22	14°M08'34	34.07782 AU	min. Earth dist.	-3643 Jun 15 j 21:47	27°M14'09	36.11549 AU
opposition	-3651 Jun 05 j 14:34	14°M04'17	-2°-51'-21	opposition	-3643 Jun 19 j 04:25	27°M09'40	-6°-49'-31
direct	-3651 Aug 24 j 20:46	12°M51'07		direct	-3643 Sep 07 j 13:06	25°M59'06	
conjunction	-3651 Dec 03 j 10:37	14°M54'30	-2°-56'-54	conjunction	-3643 Dec 16 j 05:36	27°M54'33	-6°-40'-39
minimum elong	-3651 Dec 03 j 10:31	14°M54'29	2°57'00	minimum elong	-3643 Dec 16 j 05:25	27°M54'33	6°40'47
max. Earth dist.	-3651 Dec 06 j 10:20	15°M00'17	36.20206 AU	max. Earth dist.	-3643 Dec 19 j 12:06	28°M00'31	38.23066 AU
	-3651 Dec 06 j 06:54	15°M		retrograde	-3642 Mar 30 j 03:19	29°M54'08	
retrograde	-3650 Mar 17 j 11:02	17°M01'22		min. Earth dist.	-3642 Jun 17 j 18:32	28°M46'40	36.37419 AU
min. Earth dist.	-3650 Jun 04 j 13:22	15°M51'33	34.33096 AU	opposition	-3642 Jun 21 j 00:42	28°M42'14	-7°-16'-13
opposition	-3650 Jun 07 j 15:10	15°M47'12	-3°-23'-26	direct	-3642 Sep 09 j 09:39	27°M31'59	
	-3650 Jul 13 j 21:31	15°RM					
direct	-3650 Aug 26 j 21:15	14°M34'24		conjunction	-3642 Dec 17 j 23:58	29°M26'36	-7°-5'-48
	-3650 Oct 08 j 04:56	15°M		minimum elong	-3642 Dec 17 j 23:46	29°M26'35	7°05'56
				max. Earth dist.	-3642 Dec 21 j 06:32	29°M32'31	38.48788 AU
conjunction	-3650 Dec 05 j 08:50	16°M36'43	-3°-26'-59		-3641 Jan 05 j 17:02	0°M	
minimum elong	-3650 Dec 05 j 08:43	16°M36'43	3°27'07	retrograde	-3641 Mar 31 j 23:17	1°M25'23	
max. Earth dist.	-3650 Dec 08 j 10:11	16°M42'35	36.45430 AU	min. Earth dist.	-3641 Jun 19 j 13:01	0°M18'17	36.63336 AU
retrograde	-3649 Mar 19 j 07:45	18°M42'38		opposition	-3641 Jun 22 j 20:33	0°M13'47	-7°-42'-14



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 17

Attention, astronomical year style is used: The year -3641 in astronomical counting style is the year 3642 BCE in historical counting style.

	-3641 Jul 03 j 02:26	30° $\mathring{M}$		conjunction	-3633 Dec 31 j 05:27	12° $\mathring{A}$ 33'28	-10°-24'-36
direct	-3641 Sep 11 j 04:05	29° $\mathring{M}$ 03'53		minimum elong	-3633 Dec 31 j 05:14	12° $\mathring{A}$ 33'28	10°24'45
	-3641 Nov 16 j 02:43	0° $\mathring{A}$		max. Earth dist.	-3632 Jan 03 j 13:28	12° $\mathring{A}$ 39'10	40.74257 AU
				retrograde	-3632 Apr 13 j 03:58	14° $\mathring{A}$ 25'44	
conjunction	-3641 Dec 19 j 17:47	0° $\mathring{A}$ 57'41	-7°-30'-19	min. Earth dist.	-3632 Jul 02 j 06:00	13° $\mathring{A}$ 20'47	38.89938 AU
minimum elong	-3641 Dec 19 j 17:35	0° $\mathring{A}$ 57'40	7°30'27	opposition	-3632 Jul 05 j 12:27	13° $\mathring{A}$ 16'31	-11°-6'-51
max. Earth dist.	-3641 Dec 23 j 00:58	1° $\mathring{A}$ 03'36	38.74512 AU	direct	-3632 Sep 23 j 22:13	12° $\mathring{A}$ 09'07	
retrograde	-3640 Apr 01 j 19:07	2° $\mathring{A}$ 55'42					
min. Earth dist.	-3640 Jun 20 j 08:49	1° $\mathring{A}$ 48'52	36.89246 AU	conjunction	-3632 Dec 31 j 20:19	13° $\mathring{A}$ 56'12	-10°-43'-42
opposition	-3640 Jun 23 j 16:08	1° $\mathring{A}$ 44'26	-8°-7'-34	minimum elong	-3632 Dec 31 j 20:06	13° $\mathring{A}$ 56'11	10°43'50
direct	-3640 Sep 11 j 21:29	0° $\mathring{A}$ 34'52		max. Earth dist.	-3631 Jan 04 j 03:20	14° $\mathring{A}$ 01'47	40.98444 AU
				retrograde	-3631 Apr 14 j 18:13	15° $\mathring{A}$ 47'47	
conjunction	-3640 Dec 20 j 11:34	2° $\mathring{A}$ 27'52	-7°-54'-12	min. Earth dist.	-3631 Jul 03 j 20:42	14° $\mathring{A}$ 43'06	39.14300 AU
minimum elong	-3640 Dec 20 j 11:21	2° $\mathring{A}$ 27'51	7°54'21	opposition	-3631 Jul 07 j 04:00	14° $\mathring{A}$ 38'48	-11°-26'-24
max. Earth dist.	-3640 Dec 23 j 19:33	2° $\mathring{A}$ 33'48	39.00187 AU	direct	-3631 Sep 25 j 14:39	13° $\mathring{A}$ 31'38	
retrograde	-3639 Apr 03 j 11:52	4° $\mathring{A}$ 25'08					
min. Earth dist.	-3639 Jun 22 j 03:33	3° $\mathring{A}$ 18'36	37.15057 AU	conjunction	-3630 Jan 02 j 10:54	15° $\mathring{A}$ 18'04	-11°-2'-12
opposition	-3639 Jun 25 j 10:58	3° $\mathring{A}$ 14'10	-8°-32'-14	minimum elong	-3630 Jan 02 j 10:42	15° $\mathring{A}$ 18'03	11°02'21
direct	-3639 Sep 13 j 18:13	2° $\mathring{A}$ 04'56		max. Earth dist.	-3630 Jan 05 j 18:58	15° $\mathring{A}$ 23'42	41.22538 AU
				retrograde	-3630 Apr 16 j 06:52	17° $\mathring{A}$ 09'01	
conjunction	-3639 Dec 22 j 04:51	3° $\mathring{A}$ 57'10	-8°-17'-29	min. Earth dist.	-3630 Jul 05 j 13:11	16° $\mathring{A}$ 04'30	39.38559 AU
minimum elong	-3639 Dec 22 j 04:39	3° $\mathring{A}$ 57'09	8°17'37	opposition	-3630 Jul 08 j 19:24	16° $\mathring{A}$ 00'16	-11°-45'-18
max. Earth dist.	-3639 Dec 25 j 11:58	4° $\mathring{A}$ 03'00	39.25720 AU	direct	-3630 Sep 27 j 07:26	14° $\mathring{A}$ 53'22	
retrograde	-3638 Apr 05 j 05:21	5° $\mathring{A}$ 53'42					
min. Earth dist.	-3638 Jun 23 j 21:48	4° $\mathring{A}$ 47'28	37.40713 AU	conjunction	-3629 Jan 04 j 01:03	16° $\mathring{A}$ 39'08	-11°-20'-7
opposition	-3638 Jun 27 j 05:36	4° $\mathring{A}$ 43'02	-8°-56'-15	minimum elong	-3629 Jan 04 j 00:50	16° $\mathring{A}$ 39'07	11°20'16
direct	-3638 Sep 15 j 13:17	3° $\mathring{A}$ 34'07		max. Earth dist.	-3629 Jan 07 j 08:40	16° $\mathring{A}$ 44'43	41.46533 AU
				retrograde	-3629 Apr 17 j 21:18	18° $\mathring{A}$ 29'29	
conjunction	-3638 Dec 23 j 21:51	5° $\mathring{A}$ 25'35	-8°-40'-9	min. Earth dist.	-3629 Jul 07 j 03:14	17° $\mathring{A}$ 25'14	39.62692 AU
minimum elong	-3638 Dec 23 j 21:38	5° $\mathring{A}$ 25'34	8°40'18	opposition	-3629 Jul 10 j 10:24	17° $\mathring{A}$ 20'59	-12°-3'-36
max. Earth dist.	-3638 Dec 27 j 05:58	5° $\mathring{A}$ 31'28	39.51053 AU	direct	-3629 Sep 28 j 22:24	16° $\mathring{A}$ 14'20	
retrograde	-3637 Apr 06 j 20:28	7° $\mathring{A}$ 21'24					
min. Earth dist.	-3637 Jun 25 j 17:08	6° $\mathring{A}$ 15'23	37.66134 AU	conjunction	-3628 Jan 05 j 14:59	17° $\mathring{A}$ 59'29	-11°-37'-28
opposition	-3637 Jun 28 j 23:52	6° $\mathring{A}$ 11'01	-9°-19'-36	minimum elong	-3628 Jan 05 j 14:47	17° $\mathring{A}$ 59'28	11°37'37
direct	-3637 Sep 17 j 09:25	5° $\mathring{A}$ 02'23		max. Earth dist.	-3628 Jan 08 j 22:36	18° $\mathring{A}$ 05'01	41.70374 AU
				retrograde	-3628 Apr 18 j 14:06	19° $\mathring{A}$ 49'14	
conjunction	-3637 Dec 25 j 14:33	6° $\mathring{A}$ 53'06	-9°-2'-14	min. Earth dist.	-3628 Jul 07 j 18:51	18° $\mathring{A}$ 45'10	39.86665 AU
minimum elong	-3637 Dec 25 j 14:20	6° $\mathring{A}$ 53'05	9°02'22	opposition	-3628 Jul 11 j 01:09	18° $\mathring{A}$ 40'59	-12°-21'-17
max. Earth dist.	-3637 Dec 28 j 21:36	6° $\mathring{A}$ 58'52	39.76144 AU	direct	-3628 Sep 29 j 10:37	17° $\mathring{A}$ 34'35	
retrograde	-3636 Apr 07 j 12:49	8° $\mathring{A}$ 48'12					
min. Earth dist.	-3636 Jun 26 j 10:02	7° $\mathring{A}$ 42'28	37.91305 AU	conjunction	-3627 Jan 06 j 04:51	19° $\mathring{A}$ 19'09	-11°-54'-15
opposition	-3636 Jun 29 j 17:38	7° $\mathring{A}$ 38'04	-9°-42'-20	minimum elong	-3627 Jan 06 j 04:39	19° $\mathring{A}$ 19'08	11°54'24
direct	-3636 Sep 18 j 03:23	6° $\mathring{A}$ 29'43		max. Earth dist.	-3627 Jan 09 j 12:43	19° $\mathring{A}$ 24'40	41.94028 AU
				retrograde	-3627 Apr 20 j 03:43	21° $\mathring{A}$ 08'18	
conjunction	-3636 Dec 26 j 06:51	8° $\mathring{A}$ 19'40	-9°-23'-43	min. Earth dist.	-3627 Jul 09 j 09:32	20° $\mathring{A}$ 04'27	40.10392 AU
minimum elong	-3636 Dec 26 j 06:38	8° $\mathring{A}$ 19'39	9°23'52	opposition	-3627 Jul 12 j 15:29	20° $\mathring{A}$ 00'18	-12°-38'-24
max. Earth dist.	-3636 Dec 29 j 14:19	8° $\mathring{A}$ 25'26	40.00968 AU	direct	-3627 Oct 01 j 01:00	18° $\mathring{A}$ 54'09	
retrograde	-3635 Apr 09 j 05:51	10° $\mathring{A}$ 14'02					
min. Earth dist.	-3635 Jun 28 j 04:39	9° $\mathring{A}$ 08'28	38.16225 AU	conjunction	-3626 Jan 07 j 18:19	20° $\mathring{A}$ 38'08	-12°-10'-30
opposition	-3635 Jul 01 j 11:04	9° $\mathring{A}$ 04'09	-10°-4'-25	minimum elong	-3626 Jan 07 j 18:07	20° $\mathring{A}$ 38'07	12°10'40
direct	-3635 Sep 19 j 20:09	7° $\mathring{A}$ 56'03		max. Earth dist.	-3626 Jan 11 j 00:52	20° $\mathring{A}$ 43'32	42.17405 AU
				retrograde	-3626 Apr 21 j 17:39	22° $\mathring{A}$ 26'43	
conjunction	-3635 Dec 27 j 22:50	9° $\mathring{A}$ 45'15	-9°-44'-36	min. Earth dist.	-3626 Jul 10 j 23:48	21° $\mathring{A}$ 23'05	40.33829 AU
minimum elong	-3635 Dec 27 j 22:37	9° $\mathring{A}$ 45'14	9°44'45	opposition	-3626 Jul 14 j 05:32	21° $\mathring{A}$ 18'57	-12°-54'-57
max. Earth dist.	-3635 Dec 31 j 06:06	9° $\mathring{A}$ 50'58	40.25565 AU	direct	-3626 Oct 02 j 14:53	20° $\mathring{A}$ 13'02	
retrograde	-3634 Apr 10 j 22:58	11° $\mathring{A}$ 38'54					
min. Earth dist.	-3634 Jun 29 j 20:55	10° $\mathring{A}$ 33'33	38.40928 AU	conjunction	-3625 Jan 09 j 07:43	21° $\mathring{A}$ 56'28	-12°-26'-14
opposition	-3634 Jul 03 j 03:48	10° $\mathring{A}$ 29'15	-10°-25'-52	minimum elong	-3625 Jan 09 j 07:32	21° $\mathring{A}$ 56'27	12°26'22
direct	-3634 Sep 21 j 11:38	9° $\mathring{A}$ 21'22		max. Earth dist.	-3625 Jan 12 j 14:48	22° $\mathring{A}$ 01'53	42.40459 AU
				retrograde	-3625 Apr 23 j 04:17	23° $\mathring{A}$ 44'29	
conjunction	-3634 Dec 29 j 14:17	11° $\mathring{A}$ 09'51	-10°-4'-54	min. Earth dist.	-3625 Jul 12 j 15:07	22° $\mathring{A}$ 40'59	40.56905 AU
minimum elong	-3634 Dec 29 j 14:03	11° $\mathring{A}$ 09'50	10°05'03	opposition	-3625 Jul 15 j 19:24	22° $\mathring{A}$ 36'56	-13°-10'-56
max. Earth dist.	-3633 Jan 01 j 21:11	11° $\mathring{A}$ 15'29	40.49970 AU	direct	-3625 Oct 04 j 07:22	21° $\mathring{A}$ 31'15	
retrograde	-3633 Apr 12 j 15:06	13° $\mathring{A}$ 02'47					
min. Earth dist.	-3633 Jul 01 j 13:37	11° $\mathring{A}$ 57'38	38.65493 AU	conjunction	-3624 Jan 10 j 20:47	23° $\mathring{A}$ 14'06	-12°-41'-26
opposition	-3633 Jul 04 j 20:22	11° $\mathring{A}$ 53'21	-10°-46'-41	minimum elong	-3624 Jan 10 j 20:35	23° $\mathring{A}$ 14'05	12°41'36
direct	-3633 Sep 23 j 03:37	10° $\mathring{A}$ 45'43		max. Earth dist.	-3624 Jan 14 j 02:18	23° $\mathring{A}$ 19'23	42.63145 AU



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 18

Attention, astronomical year style is used: The year -3624 in astronomical counting style is the year 3625 BCE in historical counting style.

retrograde	-3624 Apr 23 j 16:47	25° $\mathring{\text{A}}$ 01'33		minimum elong	-3616 Jan 20 j 19:37	3° $\mathring{\text{C}}$ 10'25	14°25'09
min. Earth dist.	-3624 Jul 13 j 04:20	23° $\mathring{\text{A}}$ 58'16	40.79593 AU	max. Earth dist.	-3616 Jan 23 j 22:08	3° $\mathring{\text{C}}$ 15'18	44.33952 AU
opposition	-3624 Jul 16 j 08:54	23° $\mathring{\text{A}}$ 54'14	-13°-26'-24	retrograde	-3616 May 03 j 16:09	4° $\mathring{\text{C}}$ 53'48	
direct	-3624 Oct 04 j 21:32	22° $\mathring{\text{A}}$ 48'44		min. Earth dist.	-3616 Jul 23 j 09:45	3° $\mathring{\text{C}}$ 51'46	42.50891 AU
				opposition	-3616 Jul 26 j 09:56	3° $\mathring{\text{C}}$ 48'03	-15°-11'-4
conjunction	-3623 Jan 11 j 09:40	24° $\mathring{\text{A}}$ 31'02	-12°-56'-9	direct	-3616 Oct 14 j 22:26	2° $\mathring{\text{C}}$ 44'05	
minimum elong	-3623 Jan 11 j 09:29	24° $\mathring{\text{A}}$ 31'01	12°56'17				
max. Earth dist.	-3623 Jan 14 j 14:52	24° $\mathring{\text{A}}$ 36'16	42.85431 AU	conjunction	-3615 Jan 21 j 06:49	4° $\mathring{\text{C}}$ 22'28	-14°-35'-44
retrograde	-3623 Apr 25 j 05:42	26° $\mathring{\text{A}}$ 17'56		minimum elong	-3615 Jan 21 j 06:42	4° $\mathring{\text{C}}$ 22'27	14°35'54
min. Earth dist.	-3623 Jul 14 j 19:12	25° $\mathring{\text{A}}$ 14'44	41.01897 AU	max. Earth dist.	-3615 Jan 24 j 09:36	4° $\mathring{\text{C}}$ 27'20	44.54312 AU
opposition	-3623 Jul 17 j 22:03	25° $\mathring{\text{A}}$ 10'47	-13°-41'-20	retrograde	-3615 May 05 j 02:57	6° $\mathring{\text{C}}$ 05'23	
direct	-3623 Oct 06 j 10:50	24° $\mathring{\text{A}}$ 05'29		min. Earth dist.	-3615 Jul 24 j 21:31	5° $\mathring{\text{C}}$ 03'30	42.71254 AU
				opposition	-3615 Jul 27 j 20:43	4° $\mathring{\text{C}}$ 59'51	-15°-21'-51
conjunction	-3622 Jan 12 j 22:17	25° $\mathring{\text{A}}$ 47'14	-13°-10'-21	direct	-3615 Oct 16 j 09:06	3° $\mathring{\text{C}}$ 56'06	
minimum elong	-3622 Jan 12 j 22:06	25° $\mathring{\text{A}}$ 47'13	13°10'31				
max. Earth dist.	-3622 Jan 16 j 03:09	25° $\mathring{\text{A}}$ 52'24	43.07365 AU	conjunction	-3614 Jan 22 j 17:35	5° $\mathring{\text{C}}$ 34'04	-14°-46'-1
retrograde	-3622 Apr 26 j 18:44	27° $\mathring{\text{A}}$ 33'34		minimum elong	-3614 Jan 22 j 17:26	5° $\mathring{\text{C}}$ 34'04	14°46'10
min. Earth dist.	-3622 Jul 16 j 08:03	26° $\mathring{\text{A}}$ 30'32	41.23852 AU	max. Earth dist.	-3614 Jan 25 j 18:32	5° $\mathring{\text{C}}$ 38'48	44.74354 AU
opposition	-3622 Jul 19 j 10:49	26° $\mathring{\text{A}}$ 26'37	-13°-55'-45	retrograde	-3614 May 06 j 14:37	7° $\mathring{\text{C}}$ 16'34	
direct	-3622 Oct 07 j 23:15	25° $\mathring{\text{A}}$ 21'29		min. Earth dist.	-3614 Jul 26 j 08:24	6° $\mathring{\text{C}}$ 14'52	42.91275 AU
				opposition	-3614 Jul 29 j 07:30	6° $\mathring{\text{C}}$ 11'14	-15°-32'-10
conjunction	-3621 Jan 14 j 10:17	27° $\mathring{\text{A}}$ 02'41	-13°-24'-3	direct	-3614 Oct 17 j 19:09	5° $\mathring{\text{C}}$ 07'41	
minimum elong	-3621 Jan 14 j 10:07	27° $\mathring{\text{A}}$ 02'40	13°24'12				
max. Earth dist.	-3621 Jan 17 j 14:05	27° $\mathring{\text{A}}$ 07'46	43.28980 AU	conjunction	-3613 Jan 24 j 04:08	6° $\mathring{\text{C}}$ 45'14	-14°-55'-51
retrograde	-3621 Apr 28 j 08:50	28° $\mathring{\text{A}}$ 48'28		minimum elong	-3613 Jan 24 j 04:01	6° $\mathring{\text{C}}$ 45'14	14°56'01
min. Earth dist.	-3621 Jul 17 j 21:03	27° $\mathring{\text{A}}$ 45'35	41.45539 AU	max. Earth dist.	-3613 Jan 27 j 05:08	6° $\mathring{\text{C}}$ 49'57	44.94012 AU
opposition	-3621 Jul 20 j 23:28	27° $\mathring{\text{A}}$ 41'42	-14°-9'-37	retrograde	-3613 May 07 j 21:55	8° $\mathring{\text{C}}$ 27'19	
direct	-3621 Oct 09 j 09:51	26° $\mathring{\text{A}}$ 36'45		min. Earth dist.	-3613 Jul 27 j 21:06	7° $\mathring{\text{C}}$ 25'43	43.10875 AU
				opposition	-3613 Jul 30 j 18:10	7° $\mathring{\text{C}}$ 22'11	-15°-42'-2
conjunction	-3620 Jan 15 j 22:21	28° $\mathring{\text{A}}$ 17'26	-13°-37'-15	direct	-3613 Oct 19 j 08:27	6° $\mathring{\text{C}}$ 18'48	
minimum elong	-3620 Jan 15 j 22:10	28° $\mathring{\text{A}}$ 17'25	13°37'25				
max. Earth dist.	-3620 Jan 19 j 02:50	28° $\mathring{\text{A}}$ 22'32	43.50357 AU	conjunction	-3612 Jan 25 j 14:44	7° $\mathring{\text{C}}$ 55'57	-15°-5'-17
	-3620 Apr 13 j 15:53	0° $\mathring{\text{C}}$		minimum elong	-3612 Jan 25 j 14:37	7° $\mathring{\text{C}}$ 55'56	15°05'25
retrograde	-3620 Apr 28 j 18:37	0° $\mathring{\text{C}}$ 02'41		max. Earth dist.	-3612 Jan 28 j 14:18	8° $\mathring{\text{C}}$ 00'34	45.13245 AU
	-3620 May 13 j 22:21	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$		retrograde	-3612 May 08 j 07:17	9° $\mathring{\text{C}}$ 37'36	
min. Earth dist.	-3620 Jul 18 j 10:12	28° $\mathring{\text{A}}$ 59'56	41.66994 AU	min. Earth dist.	-3612 Jul 28 j 07:29	8° $\mathring{\text{C}}$ 36'09	43.30018 AU
opposition	-3620 Jul 21 j 11:37	28° $\mathring{\text{A}}$ 56'06	-14°-22'-58	opposition	-3612 Jul 31 j 04:26	8° $\mathring{\text{C}}$ 32'38	-15°-51'-29
direct	-3620 Oct 09 j 23:50	27° $\mathring{\text{A}}$ 51'20		direct	-3612 Oct 19 j 20:25	7° $\mathring{\text{C}}$ 29'25	
conjunction	-3619 Jan 16 j 10:04	29° $\mathring{\text{A}}$ 31'31	-13°-49'-56	conjunction	-3611 Jan 26 j 01:04	9° $\mathring{\text{C}}$ 06'08	-15°-14'-18
minimum elong	-3619 Jan 16 j 09:55	29° $\mathring{\text{A}}$ 31'30	13°50'06	minimum elong	-3611 Jan 26 j 00:58	9° $\mathring{\text{C}}$ 06'08	15°14'28
max. Earth dist.	-3619 Jan 19 j 13:17	29° $\mathring{\text{A}}$ 36'31	43.71535 AU	max. Earth dist.	-3611 Jan 28 j 23:24	9° $\mathring{\text{C}}$ 10'39	45.32006 AU
	-3619 Feb 03 j 12:26	0° $\mathring{\text{C}}$		retrograde	-3611 May 09 j 19:53	10° $\mathring{\text{C}}$ 47'22	
retrograde	-3619 Apr 30 j 04:21	1° $\mathring{\text{C}}$ 16'16		min. Earth dist.	-3611 Jul 29 j 19:26	9° $\mathring{\text{C}}$ 45'58	43.48700 AU
min. Earth dist.	-3619 Jul 19 j 21:33	0° $\mathring{\text{C}}$ 13'44	41.88263 AU	opposition	-3611 Aug 01 j 14:41	9° $\mathring{\text{C}}$ 42'33	-16°00'-30
opposition	-3619 Jul 22 j 23:33	0° $\mathring{\text{C}}$ 09'53	-14°-35'-46	direct	-3611 Oct 21 j 04:59	8° $\mathring{\text{C}}$ 39'28	
	-3619 Jul 30 j 22:07	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$					
direct	-3619 Oct 11 j 13:24	29° $\mathring{\text{A}}$ 05'18		conjunction	-3610 Jan 27 j 11:13	10° $\mathring{\text{C}}$ 15'46	-15°-22'-55
	-3619 Dec 19 j 12:07	0° $\mathring{\text{C}}$		minimum elong	-3610 Jan 27 j 11:07	10° $\mathring{\text{C}}$ 15'46	15°23'04
				max. Earth dist.	-3610 Jan 30 j 09:16	10° $\mathring{\text{C}}$ 20'15	45.50327 AU
conjunction	-3618 Jan 17 j 21:30	0° $\mathring{\text{C}}$ 45'00	-14°-2'-7	retrograde	-3610 May 11 j 05:05	11° $\mathring{\text{C}}$ 56'33	
minimum elong	-3618 Jan 17 j 21:20	0° $\mathring{\text{C}}$ 44'59	14°02'17	min. Earth dist.	-3610 Jul 31 j 06:02	10° $\mathring{\text{C}}$ 55'15	43.66942 AU
max. Earth dist.	-3618 Jan 21 j 01:10	0° $\mathring{\text{C}}$ 50'00	43.92523 AU	opposition	-3610 Aug 03 j 00:30	10° $\mathring{\text{C}}$ 51'53	-16°-9'-6
retrograde	-3618 May 01 j 14:51	2° $\mathring{\text{C}}$ 29'17		direct	-3610 Oct 22 j 15:27	9° $\mathring{\text{C}}$ 48'56	
min. Earth dist.	-3618 Jul 21 j 10:33	1° $\mathring{\text{C}}$ 26'52	42.09344 AU				
opposition	-3618 Jul 24 j 11:14	1° $\mathring{\text{C}}$ 23'05	-14°-48'-3	conjunction	-3609 Jan 28 j 21:01	11° $\mathring{\text{C}}$ 24'49	-15°-31'-7
direct	-3618 Oct 13 j 02:27	0° $\mathring{\text{C}}$ 18'43		minimum elong	-3609 Jan 28 j 20:55	11° $\mathring{\text{C}}$ 24'49	15°31'17
				max. Earth dist.	-3609 Jan 31 j 17:17	11° $\mathring{\text{C}}$ 29'09	45.68253 AU
conjunction	-3617 Jan 19 j 08:49	1° $\mathring{\text{C}}$ 57'57	-14°-13'-48	retrograde	-3609 May 12 j 15:30	13° $\mathring{\text{C}}$ 05'09	
minimum elong	-3617 Jan 19 j 08:41	1° $\mathring{\text{C}}$ 57'57	14°13'58	min. Earth dist.	-3609 Aug 01 j 16:10	12° $\mathring{\text{C}}$ 03'57	43.84832 AU
max. Earth dist.	-3617 Jan 22 j 12:00	2° $\mathring{\text{C}}$ 02'54	44.13345 AU	opposition	-3609 Aug 04 j 10:11	12° $\mathring{\text{C}}$ 00'37	-16°-17'-17
retrograde	-3617 May 03 j 02:43	3° $\mathring{\text{C}}$ 41'47		direct	-3609 Oct 24 j 00:12	10° $\mathring{\text{C}}$ 57'47	
min. Earth dist.	-3617 Jul 22 j 21:29	2° $\mathring{\text{C}}$ 39'35	42.30230 AU				
opposition	-3617 Jul 25 j 22:38	2° $\mathring{\text{C}}$ 35'48	-14°-59'-49	conjunction	-3608 Jan 30 j 06:42	12° $\mathring{\text{C}}$ 33'17	-15°-38'-54
direct	-3617 Oct 14 j 13:20	1° $\mathring{\text{C}}$ 31'38		minimum elong	-3608 Jan 30 j 06:38	12° $\mathring{\text{C}}$ 33'16	15°39'03
				max. Earth dist.	-3608 Feb 02 j 03:22	12° $\mathring{\text{C}}$ 37'37	45.85846 AU
conjunction	-3616 Jan 20 j 19:46	3° $\mathring{\text{C}}$ 10'26	-14°-25'00	retrograde	-3608 May 12 j 22:28	14° $\mathring{\text{C}}$ 13'11	



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 19

Attention, astronomical year style is used: The year -3608 in astronomical counting style is the year 3609 BCE in historical counting style.

min. Earth dist.	-3608 Aug 02 j 03:12	13° $\overline{3}$ 12'03	44.02400 AU	conjunction	-3599 Feb 08 j 15:25	22° $\overline{3}$ 31'13	-16°-31'-8
opposition	-3608 Aug 04 j 19:41	13° $\overline{3}$ 08'47	-16°-25'-1	minimum elong	-3599 Feb 08 j 15:23	22° $\overline{3}$ 31'13	16°31'16
direct	-3608 Oct 24 j 12:03	12° $\overline{3}$ 06'05		max. Earth dist.	-3599 Feb 11 j 02:57	22° $\overline{3}$ 34'52	47.30626 AU
				retrograde	-3599 May 23 j 07:24	24° $\overline{3}$ 08'04	
conjunction	-3607 Jan 30 j 16:16	13° $\overline{3}$ 41'11	-15°-46'-17	min. Earth dist.	-3599 Aug 12 j 16:05	23° $\overline{3}$ 07'56	45.46379 AU
minimum elong	-3607 Jan 30 j 16:11	13° $\overline{3}$ 41'11	15°46'26	opposition	-3599 Aug 15 j 00:32	23° $\overline{3}$ 05'08	-17°-16'-18
max. Earth dist.	-3607 Feb 02 j 11:37	13° $\overline{3}$ 45'26	46.03159 AU	direct	-3599 Nov 03 j 16:48	22° $\overline{3}$ 03'44	
retrograde	-3607 May 14 j 06:15	15° $\overline{3}$ 20'41					
min. Earth dist.	-3607 Aug 03 j 11:54	14° $\overline{3}$ 19'42	44.19697 AU	conjunction	-3598 Feb 09 j 23:51	23° $\overline{3}$ 36'04	-16°-35'-9
opposition	-3607 Aug 06 j 04:43	14° $\overline{3}$ 16'26	-16°-32'-19	minimum elong	-3598 Feb 09 j 23:51	23° $\overline{3}$ 36'04	16°35'19
direct	-3607 Oct 25 j 22:21	13° $\overline{3}$ 13'52		max. Earth dist.	-3598 Feb 12 j 11:17	23° $\overline{3}$ 39'42	47.44586 AU
				retrograde	-3598 May 24 j 14:18	25° $\overline{3}$ 12'35	
conjunction	-3606 Feb 01 j 01:33	14° $\overline{3}$ 48'36	-15°-53'-14	min. Earth dist.	-3598 Aug 14 j 01:35	24° $\overline{3}$ 12'28	45.60163 AU
minimum elong	-3606 Feb 01 j 01:29	14° $\overline{3}$ 48'36	15°53'23	opposition	-3598 Aug 16 j 08:19	24° $\overline{3}$ 09'46	-17°-20'-12
max. Earth dist.	-3606 Feb 03 j 20:18	14° $\overline{3}$ 52'48	46.20209 AU	direct	-3598 Nov 05 j 01:25	23° $\overline{3}$ 08'28	
retrograde	-3606 May 15 j 15:52	16° $\overline{3}$ 27'44					
min. Earth dist.	-3606 Aug 04 j 22:29	15° $\overline{3}$ 26'50	44.36745 AU	conjunction	-3597 Feb 11 j 07:54	24° $\overline{3}$ 40'30	-16°-38'-51
opposition	-3606 Aug 07 j 13:52	15° $\overline{3}$ 23'38	-16°-39'-12	minimum elong	-3597 Feb 11 j 07:53	24° $\overline{3}$ 40'30	16°38'59
direct	-3606 Oct 27 j 07:41	14° $\overline{3}$ 21'13		max. Earth dist.	-3597 Feb 13 j 17:22	24° $\overline{3}$ 44'00	47.58094 AU
				retrograde	-3597 May 25 j 21:10	26° $\overline{3}$ 16'41	
conjunction	-3605 Feb 02 j 10:38	15° $\overline{3}$ 55'36	-15°-59'-47	min. Earth dist.	-3597 Aug 15 j 09:14	25° $\overline{3}$ 16'40	45.73525 AU
minimum elong	-3605 Feb 02 j 10:34	15° $\overline{3}$ 55'36	15°59'56	opposition	-3597 Aug 17 j 15:53	25° $\overline{3}$ 13'59	-17°-23'-45
max. Earth dist.	-3605 Feb 05 j 05:28	15° $\overline{3}$ 59'47	46.37025 AU	direct	-3597 Nov 06 j 09:29	24° $\overline{3}$ 12'45	
retrograde	-3605 May 17 j 01:50	17° $\overline{3}$ 34'22					
min. Earth dist.	-3605 Aug 06 j 07:38	16° $\overline{3}$ 33'36	44.53529 AU	conjunction	-3596 Feb 12 j 15:58	25° $\overline{3}$ 44'31	-16°-42'-13
opposition	-3605 Aug 08 j 22:43	16° $\overline{3}$ 30'27	-16°-45'-39	minimum elong	-3596 Feb 12 j 15:58	25° $\overline{3}$ 44'31	16°42'22
direct	-3605 Oct 28 j 15:47	15° $\overline{3}$ 28'10		max. Earth dist.	-3596 Feb 15 j 00:48	25° $\overline{3}$ 47'58	47.71199 AU
				retrograde	-3596 May 26 j 02:23	27° $\overline{3}$ 20'23	
conjunction	-3604 Feb 03 j 19:37	17° $\overline{3}$ 02'15	-16°-5'-56	min. Earth dist.	-3596 Aug 15 j 18:39	26° $\overline{3}$ 20'22	45.86516 AU
minimum elong	-3604 Feb 03 j 19:35	17° $\overline{3}$ 02'14	16°06'04	opposition	-3596 Aug 17 j 23:15	26° $\overline{3}$ 17'46	-17°-26'-57
max. Earth dist.	-3604 Feb 06 j 12:49	17° $\overline{3}$ 06'18	46.53575 AU	direct	-3596 Nov 06 j 19:52	25° $\overline{3}$ 16'38	
retrograde	-3604 May 17 j 13:17	18° $\overline{3}$ 40'40					
min. Earth dist.	-3604 Aug 06 j 16:50	17° $\overline{3}$ 40'02	44.70041 AU	conjunction	-3595 Feb 12 j 23:59	26° $\overline{3}$ 48'06	-16°-45'-14
opposition	-3604 Aug 09 j 07:23	17° $\overline{3}$ 36'55	-16°-51'-41	minimum elong	-3595 Feb 13 j 00:00	26° $\overline{3}$ 48'06	16°45'22
direct	-3604 Oct 28 j 21:51	16° $\overline{3}$ 34'48		max. Earth dist.	-3595 Feb 15 j 08:15	26° $\overline{3}$ 51'31	47.83976 AU
				retrograde	-3595 May 27 j 09:44	28° $\overline{3}$ 23'40	
conjunction	-3603 Feb 04 j 04:38	18° $\overline{3}$ 08'35	-16°-11'-41	min. Earth dist.	-3595 Aug 17 j 01:56	27° $\overline{3}$ 23'45	45.99181 AU
minimum elong	-3603 Feb 04 j 04:35	18° $\overline{3}$ 08'34	16°11'50	opposition	-3595 Aug 19 j 06:25	27° $\overline{3}$ 21'10	-17°-29'-47
max. Earth dist.	-3603 Feb 06 j 21:59	18° $\overline{3}$ 12'38	46.69824 AU	direct	-3595 Nov 08 j 04:17	26° $\overline{3}$ 20'07	
retrograde	-3603 May 18 j 20:10	19° $\overline{3}$ 46'40					
min. Earth dist.	-3603 Aug 08 j 03:05	18° $\overline{3}$ 46'08	44.86207 AU	conjunction	-3594 Feb 14 j 07:33	27° $\overline{3}$ 51'19	-16°-47'-54
opposition	-3603 Aug 10 j 15:56	18° $\overline{3}$ 43'06	-16°-57'-20	minimum elong	-3594 Feb 14 j 07:33	27° $\overline{3}$ 51'19	16°48'03
direct	-3603 Oct 30 j 07:53	17° $\overline{3}$ 41'10		max. Earth dist.	-3594 Feb 16 j 14:11	27° $\overline{3}$ 54'37	47.96446 AU
				retrograde	-3594 May 28 j 20:31	29° $\overline{3}$ 26'35	
conjunction	-3602 Feb 05 j 13:23	19° $\overline{3}$ 14'38	-16°-17'-3	min. Earth dist.	-3594 Aug 18 j 10:02	28° $\overline{3}$ 26'44	46.11565 AU
minimum elong	-3602 Feb 05 j 13:22	19° $\overline{3}$ 14'38	16°17'13	opposition	-3594 Aug 20 j 13:34	28° $\overline{3}$ 24'12	-17°-32'-15
max. Earth dist.	-3602 Feb 08 j 05:05	19° $\overline{3}$ 18'35	46.85716 AU	direct	-3594 Nov 09 j 08:12	27° $\overline{3}$ 23'15	
retrograde	-3602 May 20 j 02:55	20° $\overline{3}$ 52'25					
min. Earth dist.	-3602 Aug 09 j 11:33	19° $\overline{3}$ 52'04	45.01981 AU	conjunction	-3593 Feb 15 j 15:15	28° $\overline{3}$ 54'12	-16°-50'-13
opposition	-3602 Aug 12 j 00:16	19° $\overline{3}$ 49'02	-17°-2'-36	minimum elong	-3593 Feb 15 j 15:17	28° $\overline{3}$ 54'12	16°50'21
direct	-3602 Oct 31 j 18:05	18° $\overline{3}$ 47'15		max. Earth dist.	-3593 Feb 17 j 22:08	28° $\overline{3}$ 57'30	48.08650 AU
					-3593 Apr 06 j 23:29	0° $\approx$	
conjunction	-3601 Feb 06 j 22:07	20° $\overline{3}$ 20'27	-16°-22'-5	retrograde	-3593 May 30 j 03:25	0° $\approx$ 29'11	
minimum elong	-3601 Feb 06 j 22:04	20° $\overline{3}$ 20'27	16°22'14		-3593 Jul 23 j 02:59	30° $\overline{R}$ $\overline{3}$	
max. Earth dist.	-3601 Feb 09 j 12:52	20° $\overline{3}$ 24'20	47.01176 AU	min. Earth dist.	-3593 Aug 19 j 18:07	29° $\overline{3}$ 29'23	46.23664 AU
retrograde	-3601 May 21 j 11:56	21° $\overline{3}$ 57'56		opposition	-3593 Aug 21 j 20:31	29° $\overline{3}$ 26'55	-17°-34'-22
min. Earth dist.	-3601 Aug 10 j 22:00	20° $\overline{3}$ 57'38	45.17299 AU	direct	-3593 Nov 10 j 15:39	28° $\overline{3}$ 26'04	
opposition	-3601 Aug 13 j 08:35	20° $\overline{3}$ 54'43	-17°-7'-31				
direct	-3601 Nov 02 j 02:58	19° $\overline{3}$ 53'05		conjunction	-3592 Feb 16 j 22:45	29° $\overline{3}$ 56'47	-16°-52'-11
				minimum elong	-3592 Feb 16 j 22:46	29° $\overline{3}$ 56'47	16°52'20
conjunction	-3600 Feb 08 j 06:52	21° $\overline{3}$ 26'00	-16°-26'-46	max. Earth dist.	-3592 Feb 19 j 03:54	29° $\overline{3}$ 59'58	48.20582 AU
minimum elong	-3600 Feb 08 j 06:51	21° $\overline{3}$ 26'00	16°26'55		-3592 Feb 19 j 04:22	0° $\approx$	
max. Earth dist.	-3600 Feb 10 j 20:43	21° $\overline{3}$ 29'48	47.16165 AU	retrograde	-3592 May 30 j 09:36	1° $\approx$ 31'29	
retrograde	-3600 May 21 j 20:37	23° $\overline{3}$ 03'10		min. Earth dist.	-3592 Aug 20 j 01:04	0° $\approx$ 31'49	46.35476 AU
min. Earth dist.	-3600 Aug 11 j 06:48	22° $\overline{3}$ 02'58	45.32096 AU	opposition	-3592 Aug 22 j 03:21	0° $\approx$ 29'21	-17°-36'-8
opposition	-3600 Aug 13 j 16:39	22° $\overline{3}$ 00'06	-17°-12'-5		-3592 Sep 17 j 04:45	30° $\overline{R}$ $\overline{3}$	
direct	-3600 Nov 02 j 11:05	20° $\overline{3}$ 58'35		direct	-3592 Nov 10 j 22:51	29° $\overline{3}$ 28'36	



Attention, astronomical year style is used: The year -3591 in astronomical counting style is the year 3592 BCE in historical counting style.

	-3591 Jan 03 j 13:05	0°		minimum elong	-3583 Feb 25 j 15:17	9°	16°56'26
				max. Earth dist.	-3583 Feb 27 j 10:21	9°	49.09350 AU
conjunction	-3591 Feb 17 j 06:13	0°	-16°-53'-50	retrograde	-3583 Jun 08 j 21:46	10°	
minimum elong	-3591 Feb 17 j 06:17	0°	16°53'58	min. Earth dist.	-3583 Aug 29 j 20:52	9°	47.22368 AU
max. Earth dist.	-3591 Feb 19 j 10:54	1°	48.32196 AU	opposition	-3583 Aug 31 j 11:42	9°	-17°-38'-13
retrograde	-3591 May 31 j 14:44	2°		direct	-3583 Nov 20 j 11:15	8°	
min. Earth dist.	-3591 Aug 21 j 09:45	1°	46.46948 AU				
opposition	-3591 Aug 23 j 10:02	1°	-17°-37'-34	conjunction	-3582 Feb 26 j 21:48	10°	-16°-55'-18
direct	-3591 Nov 12 j 07:39	0°		minimum elong	-3582 Feb 26 j 21:54	10°	16°55'24
				max. Earth dist.	-3582 Feb 28 j 15:05	10°	49.17164 AU
conjunction	-3590 Feb 18 j 13:40	2°	-16°-55'-9	retrograde	-3582 Jun 10 j 04:22	11°	
minimum elong	-3590 Feb 18 j 13:41	2°	16°55'17	min. Earth dist.	-3582 Aug 31 j 02:46	10°	47.30022 AU
max. Earth dist.	-3590 Feb 20 j 17:24	2°	48.43468 AU	opposition	-3582 Sep 01 j 17:24	10°	-17°-36'-57
retrograde	-3590 Jun 01 j 20:57	3°		direct	-3582 Nov 21 j 15:56	9°	
min. Earth dist.	-3590 Aug 22 j 16:36	2°	46.58032 AU				
opposition	-3590 Aug 24 j 16:35	2°	-17°-38'-41	conjunction	-3581 Feb 28 j 04:15	11°	-16°-53'-59
direct	-3590 Nov 13 j 15:38	1°		minimum elong	-3581 Feb 28 j 04:20	11°	16°54'07
				max. Earth dist.	-3581 Mar 01 j 21:14	11°	49.24693 AU
conjunction	-3589 Feb 19 j 20:50	3°	-16°-56'-10	retrograde	-3581 Jun 11 j 08:10	12°	
minimum elong	-3589 Feb 19 j 20:53	3°	16°56'18	min. Earth dist.	-3581 Sep 01 j 10:17	11°	47.37387 AU
max. Earth dist.	-3589 Feb 21 j 22:39	3°	48.54315 AU	opposition	-3581 Sep 02 j 23:07	11°	-17°-35'-21
retrograde	-3589 Jun 03 j 06:18	4°		direct	-3581 Nov 22 j 23:53	10°	
min. Earth dist.	-3589 Aug 24 j 00:57	3°	46.68669 AU				
opposition	-3589 Aug 25 j 23:13	3°	-17°-39'-29	conjunction	-3580 Feb 29 j 10:52	12°	-16°-52'-23
direct	-3589 Nov 14 j 20:46	2°		minimum elong	-3580 Feb 29 j 10:59	12°	16°52'29
				max. Earth dist.	-3580 Mar 02 j 02:54	12°	49.31952 AU
conjunction	-3588 Feb 21 j 04:17	4°	-16°-56'-53	retrograde	-3580 Jun 11 j 12:37	13°	
minimum elong	-3588 Feb 21 j 04:20	4°	16°57'01	min. Earth dist.	-3580 Sep 01 j 15:39	12°	47.44457 AU
max. Earth dist.	-3588 Feb 23 j 05:44	4°	48.64686 AU	opposition	-3580 Sep 03 j 04:30	12°	-17°-33'-28
retrograde	-3588 Jun 03 j 13:57	5°		direct	-3580 Nov 23 j 07:20	11°	
min. Earth dist.	-3588 Aug 24 j 08:55	4°	46.78788 AU				
opposition	-3588 Aug 26 j 05:33	4°	-17°-40'00	conjunction	-3579 Mar 01 j 17:18	13°	-16°-50'-28
direct	-3588 Nov 15 j 02:39	3°		minimum elong	-3579 Mar 01 j 17:24	13°	16°50'36
				max. Earth dist.	-3579 Mar 03 j 07:38	13°	49.38897 AU
conjunction	-3587 Feb 21 j 11:33	5°	-16°-57'-20	retrograde	-3579 Jun 12 j 20:32	14°	
minimum elong	-3587 Feb 21 j 11:37	5°	16°57'28	min. Earth dist.	-3579 Sep 02 j 22:55	13°	47.51203 AU
max. Earth dist.	-3587 Feb 23 j 10:30	5°	48.74543 AU	opposition	-3579 Sep 04 j 10:03	13°	-17°-31'-16
retrograde	-3587 Jun 04 j 21:51	6°		direct	-3579 Nov 24 j 12:04	12°	
min. Earth dist.	-3587 Aug 25 j 15:52	5°	46.88390 AU				
opposition	-3587 Aug 27 j 11:53	5°	-17°-40'-13	conjunction	-3578 Mar 02 j 23:42	14°	-16°-48'-17
direct	-3587 Nov 16 j 08:02	4°		minimum elong	-3578 Mar 02 j 23:50	14°	16°48'25
				max. Earth dist.	-3578 Mar 04 j 14:00	14°	49.45494 AU
conjunction	-3586 Feb 22 j 18:32	6°	-16°-57'-30		-3578 Apr 11 j 22:49	15°	
minimum elong	-3586 Feb 22 j 18:36	6°	16°57'38	retrograde	-3578 Jun 14 j 04:18	15°	
max. Earth dist.	-3586 Feb 24 j 16:37	6°	48.83881 AU		-3578 Aug 17 j 15:28	15°	
retrograde	-3586 Jun 06 j 01:40	7°		min. Earth dist.	-3578 Sep 04 j 05:27	14°	47.57552 AU
min. Earth dist.	-3586 Aug 27 j 00:24	6°	46.97490 AU	opposition	-3578 Sep 05 j 15:27	14°	-17°-28'-48
opposition	-3586 Aug 28 j 18:09	6°	-17°-40'-10	direct	-3578 Nov 25 j 16:15	13°	
direct	-3586 Nov 17 j 16:48	5°			-3577 Feb 27 j 04:09	15°	
conjunction	-3585 Feb 24 j 01:34	7°	-16°-57'-24	conjunction	-3577 Mar 04 j 06:07	15°	-16°-45'-50
minimum elong	-3585 Feb 24 j 01:38	7°	16°57'32	minimum elong	-3577 Mar 04 j 06:13	15°	16°45'57
max. Earth dist.	-3585 Feb 25 j 22:36	7°	48.92765 AU	max. Earth dist.	-3577 Mar 05 j 17:59	15°	49.51677 AU
retrograde	-3585 Jun 07 j 06:23	8°		retrograde	-3577 Jun 15 j 13:20	16°	
min. Earth dist.	-3585 Aug 28 j 06:40	7°	47.06149 AU	min. Earth dist.	-3577 Sep 05 j 11:35	15°	47.63458 AU
opposition	-3585 Aug 30 j 00:05	7°	-17°-39'-49	opposition	-3577 Sep 06 j 20:45	15°	-17°-26'-3
direct	-3585 Nov 19 j 01:12	6°			-3577 Oct 12 j 15:36	15°	
				direct	-3577 Nov 26 j 18:54	14°	
conjunction	-3584 Feb 25 j 08:22	8°	-16°-57'00		-3576 Jan 10 j 13:06	15°	
minimum elong	-3584 Feb 25 j 08:26	8°	16°57'07				
max. Earth dist.	-3584 Feb 27 j 03:30	8°	49.01233 AU	conjunction	-3576 Mar 04 j 12:39	16°	-16°-43'-7
retrograde	-3584 Jun 07 j 15:28	9°		minimum elong	-3576 Mar 04 j 12:47	16°	16°43'14
min. Earth dist.	-3584 Aug 28 j 14:08	8°	47.14431 AU	max. Earth dist.	-3576 Mar 05 j 23:37	16°	49.57369 AU
opposition	-3584 Aug 30 j 06:03	8°	-17°-39'-10	retrograde	-3576 Jun 15 j 17:31	17°	
direct	-3584 Nov 19 j 05:24	7°		min. Earth dist.	-3576 Sep 05 j 19:26	16°	47.68839 AU
				opposition	-3576 Sep 07 j 02:10	16°	-17°-23'-3
conjunction	-3583 Feb 25 j 15:13	9°	-16°-56'-18	direct	-3576 Nov 27 j 01:36	15°	



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 21

Attention, astronomical year style is used: The year -3575 in astronomical counting style is the year 3576 BCE in historical counting style.

conjunction	-3575 Mar 05 j 19:09	17°05'41	-16°-40'-10	retrograde	-3567 Jun 24 j 19:24	26°22'25	
minimum elong	-3575 Mar 05 j 19:16	17°05'41	16°40'16	opposition	-3567 Sep 15 j 22:28	25°22'21	-16°-44'-23
max. Earth dist.	-3575 Mar 07 j 04:30	17°07'37	49.62538 AU	min. Earth dist.	-3567 Sep 15 j 01:18	25°23'21	47.97342 AU
retrograde	-3575 Jun 16 j 19:55	18°36'56		direct	-3567 Dec 06 j 02:03	24°23'03	
min. Earth dist.	-3575 Sep 07 j 01:05	17°37'55	47.73677 AU				
opposition	-3575 Sep 08 j 07:17	17°36'28	-17°-19'-49	conjunction	-3566 Mar 15 j 01:42	25°50'06	-16°-2'-3
direct	-3575 Nov 28 j 10:29	16°37'00		minimum elong	-3566 Mar 15 j 01:51	25°50'06	16°02'09
				max. Earth dist.	-3566 Mar 16 j 00:03	25°51'22	49.89960 AU
conjunction	-3574 Mar 07 j 01:25	18°04'44	-16°-36'-58	retrograde	-3566 Jun 26 j 00:46	27°20'10	
minimum elong	-3574 Mar 07 j 01:33	18°04'45	16°37'06	min. Earth dist.	-3566 Sep 16 j 08:11	26°21'05	47.98719 AU
max. Earth dist.	-3574 Mar 08 j 08:33	18°06'32	49.67167 AU	opposition	-3566 Sep 17 j 03:13	26°20'10	-16°-38'-43
retrograde	-3574 Jun 18 j 02:33	19°35'50		direct	-3566 Dec 07 j 06:42	25°20'56	
min. Earth dist.	-3574 Sep 08 j 08:21	18°36'46	47.77999 AU				
opposition	-3574 Sep 09 j 12:32	18°35'25	-17°-16'-20	conjunction	-3565 Mar 16 j 07:38	26°47'57	-15°-56'-30
direct	-3574 Nov 29 j 16:09	17°35'57		minimum elong	-3565 Mar 16 j 07:49	26°47'58	15°56'36
				max. Earth dist.	-3565 Mar 17 j 04:38	26°49'09	49.91219 AU
conjunction	-3573 Mar 08 j 07:39	19°03'34	-16°-33'-32	retrograde	-3565 Jun 27 j 03:33	28°17'58	
minimum elong	-3573 Mar 08 j 07:47	19°03'34	16°33'38	opposition	-3565 Sep 18 j 07:50	27°18'02	-16°-32'-49
max. Earth dist.	-3573 Mar 09 j 14:24	19°05'20	49.71307 AU	min. Earth dist.	-3565 Sep 17 j 13:15	27°18'55	47.99637 AU
retrograde	-3573 Jun 19 j 08:25	20°34'29		direct	-3565 Dec 08 j 14:11	26°18'50	
opposition	-3573 Sep 10 j 17:36	19°34'07	-17°-12'-35				
min. Earth dist.	-3573 Sep 09 j 14:36	19°35'24	47.81836 AU	conjunction	-3564 Mar 16 j 13:41	27°45'50	-15°-50'-43
direct	-3573 Nov 30 j 21:33	18°34'40		minimum elong	-3564 Mar 16 j 13:50	27°45'51	15°50'48
				max. Earth dist.	-3564 Mar 17 j 08:18	27°46'54	49.91974 AU
conjunction	-3572 Mar 08 j 13:50	20°02'09	-16°-29'-50	retrograde	-3564 Jun 27 j 09:12	29°15'48	
minimum elong	-3572 Mar 08 j 13:58	20°02'09	16°29'57	opposition	-3564 Sep 18 j 12:29	28°15'55	-16°-26'-41
max. Earth dist.	-3572 Mar 09 j 18:19	20°03'47	49.74999 AU	min. Earth dist.	-3564 Sep 17 j 20:12	28°16'42	48.00037 AU
retrograde	-3572 Jun 19 j 15:58	21°32'54		direct	-3564 Dec 08 j 19:47	27°16'45	
opposition	-3572 Sep 10 j 22:28	20°32'34	-17°-8'-35				
min. Earth dist.	-3572 Sep 09 j 20:18	20°33'49	47.85262 AU	conjunction	-3563 Mar 17 j 19:51	28°43'43	-15°-44'-43
direct	-3572 Dec 01 j 00:45	19°33'07		minimum elong	-3563 Mar 17 j 20:02	28°43'44	15°44'48
				max. Earth dist.	-3563 Mar 18 j 13:50	28°44'45	49.92200 AU
conjunction	-3571 Mar 09 j 19:59	21°00'29	-16°-25'-53		-3563 May 23 j 06:46	0°	
minimum elong	-3571 Mar 09 j 20:08	21°00'30	16°25'59	retrograde	-3563 Jun 28 j 15:19	0°13'37	
max. Earth dist.	-3571 Mar 10 j 23:52	21°02'05	49.78295 AU		-3563 Aug 04 j 05:38	30°	
retrograde	-3571 Jun 20 j 20:03	22°31'05		opposition	-3563 Sep 19 j 17:09	29°13'47	-16°-20'-19
min. Earth dist.	-3571 Sep 11 j 03:07	21°31'56	47.88314 AU	min. Earth dist.	-3563 Sep 19 j 02:06	29°14'30	47.99880 AU
opposition	-3571 Sep 12 j 03:27	21°30'47	-17°-4'-18	direct	-3563 Dec 10 j 00:15	28°14'37	
direct	-3571 Dec 02 j 07:06	20°31'21					
				conjunction	-3562 Mar 19 j 01:36	29°41'34	-15°-38'-29
conjunction	-3570 Mar 11 j 01:52	21°58'37	-16°-21'-40	minimum elong	-3562 Mar 19 j 01:47	29°41'34	15°38'34
minimum elong	-3570 Mar 11 j 02:01	21°58'38	16°21'46	max. Earth dist.	-3562 Mar 19 j 17:00	29°42'26	49.91885 AU
max. Earth dist.	-3570 Mar 12 j 04:44	22°00'10	49.81259 AU		-3562 Apr 01 j 15:42	0°	
retrograde	-3570 Jun 21 j 23:08	23°29'04		retrograde	-3562 Jun 29 j 23:11	1°11'23	
min. Earth dist.	-3570 Sep 12 j 07:55	22°29'58	47.91040 AU	opposition	-3562 Sep 20 j 21:47	0°11'35	-16°-13'-44
opposition	-3570 Sep 13 j 08:16	22°28'49	-16°-59'-44	min. Earth dist.	-3562 Sep 20 j 07:52	0°12'14	47.99201 AU
direct	-3570 Dec 03 j 13:58	21°29'24			-3562 Oct 01 j 02:29	30°	
				direct	-3562 Dec 11 j 02:47	29°12'24	
conjunction	-3569 Mar 12 j 07:47	22°56'35	-16°-17'-10		-3561 Feb 18 j 11:27	0°	
minimum elong	-3569 Mar 12 j 07:57	22°56'36	16°17'15				
max. Earth dist.	-3569 Mar 13 j 09:01	22°58'02	49.83906 AU	conjunction	-3561 Mar 20 j 07:36	0°39'19	-15°-32'-1
retrograde	-3569 Jun 23 j 04:58	24°26'56		minimum elong	-3561 Mar 20 j 07:47	0°39'19	15°32'07
opposition	-3569 Sep 14 j 13:05	23°26'43	-16°-54'-54	max. Earth dist.	-3561 Mar 20 j 22:04	0°40'08	49.91056 AU
min. Earth dist.	-3569 Sep 13 j 14:26	23°27'48	47.93466 AU	retrograde	-3561 Jul 01 j 03:29	2°09'03	
direct	-3569 Dec 04 j 19:14	22°27'20		opposition	-3561 Sep 22 j 02:18	1°09'15	-16°-6'-54
				min. Earth dist.	-3561 Sep 21 j 14:31	1°09'49	47.98030 AU
conjunction	-3568 Mar 12 j 13:52	23°54'27	-16°-12'-23	direct	-3561 Dec 12 j 08:27	0°10'03	
minimum elong	-3568 Mar 12 j 14:00	23°54'27	16°12'30				
max. Earth dist.	-3568 Mar 13 j 14:59	23°55'53	49.86259 AU	conjunction	-3560 Mar 20 j 13:33	1°36'57	-15°-25'-19
retrograde	-3568 Jun 23 j 10:56	25°24'41		minimum elong	-3560 Mar 20 j 13:44	1°36'57	15°25'24
opposition	-3568 Sep 14 j 17:50	24°24'33	-16°-49'-46	max. Earth dist.	-3560 Mar 21 j 02:37	1°37'41	49.89785 AU
min. Earth dist.	-3568 Sep 13 j 19:58	24°25'35	47.95570 AU	retrograde	-3560 Jul 01 j 06:16	3°06'36	
direct	-3568 Dec 05 j 00:15	23°25'12		opposition	-3560 Sep 22 j 06:43	2°06'48	-15°-59'-49
				min. Earth dist.	-3560 Sep 21 j 19:11	2°07'21	47.96435 AU
conjunction	-3567 Mar 13 j 19:44	24°52'16	-16°-7'-21	direct	-3560 Dec 12 j 15:18	1°07'35	
minimum elong	-3567 Mar 13 j 19:55	24°52'17	16°07'27				
max. Earth dist.	-3567 Mar 14 j 18:41	24°53'35	49.88291 AU	conjunction	-3559 Mar 21 j 19:17	2°34'27	-15°-18'-23



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 22

Attention, astronomical year style is used: The year -3559 in astronomical counting style is the year 3560 BCE in historical counting style.

minimum elong	-3559 Mar 21 j 19:28	2° $\text{H}$ 34'27	15°18'29	opposition	-3551 Sep 30 j 22:28	10° $\text{H}$ 43'26	-14°-44'-17
max. Earth dist.	-3559 Mar 22 j 06:32	2° $\text{H}$ 35'05	49.88103 AU	min. Earth dist.	-3551 Sep 30 j 22:23	10° $\text{H}$ 43'26	47.66685 AU
retrograde	-3559 Jul 02 j 10:42	4° $\text{H}$ 04'03		direct	-3551 Dec 21 j 08:32	9° $\text{H}$ 44'05	
opposition	-3559 Sep 23 j 11:10	3° $\text{H}$ 04'15	-15°-52'-28				
min. Earth dist.	-3559 Sep 23 j 01:35	3° $\text{H}$ 04'42	47.94473 AU	conjunction	-3550 Mar 31 j 00:00	11° $\text{H}$ 11'13	-14°-4'-27
direct	-3559 Dec 13 j 21:13	2° $\text{H}$ 05'00		minimum elong	-3550 Mar 31 j 00:13	11° $\text{H}$ 11'14	14°04'32
				max. Earth dist.	-3550 Mar 31 j 00:00	11° $\text{H}$ 11'13	49.57765 AU
conjunction	-3558 Mar 23 j 01:08	3° $\text{H}$ 31'51	-15°-11'-11	retrograde	-3550 Jul 11 j 12:12	12° $\text{H}$ 40'42	
minimum elong	-3558 Mar 23 j 01:19	3° $\text{H}$ 31'51	15°11'15	opposition	-3550 Oct 02 j 02:51	11° $\text{H}$ 41'00	-14°-34'-40
max. Earth dist.	-3558 Mar 23 j 12:15	3° $\text{H}$ 32'29	49.86093 AU	min. Earth dist.	-3550 Oct 02 j 03:19	11° $\text{H}$ 40'59	47.61190 AU
retrograde	-3558 Jul 03 j 15:21	5° $\text{H}$ 01'24		direct	-3550 Dec 22 j 14:27	10° $\text{H}$ 41'36	
opposition	-3558 Sep 24 j 15:32	4° $\text{H}$ 01'36	-15°-44'-52				
min. Earth dist.	-3558 Sep 24 j 06:28	4° $\text{H}$ 02'02	47.92188 AU	conjunction	-3549 Apr 01 j 05:56	12° $\text{H}$ 08'47	-13°-55'-4
direct	-3558 Dec 15 j 02:56	3° $\text{H}$ 02'20		minimum elong	-3549 Apr 01 j 06:08	12° $\text{H}$ 08'48	13°55'07
				max. Earth dist.	-3549 Apr 01 j 03:44	12° $\text{H}$ 08'40	49.52160 AU
conjunction	-3557 Mar 24 j 06:45	4° $\text{H}$ 29'10	-15°-3'-43	retrograde	-3549 Jul 12 j 16:36	13° $\text{H}$ 38'17	
minimum elong	-3557 Mar 24 j 06:56	4° $\text{H}$ 29'11	15°03'48	opposition	-3549 Oct 03 j 07:23	12° $\text{H}$ 38'34	-14°-24'-49
max. Earth dist.	-3557 Mar 24 j 15:46	4° $\text{H}$ 29'41	49.83787 AU	min. Earth dist.	-3549 Oct 03 j 10:07	12° $\text{H}$ 38'26	47.55212 AU
retrograde	-3557 Jul 05 j 00:10	5° $\text{H}$ 58'40		direct	-3549 Dec 23 j 20:26	11° $\text{H}$ 39'06	
opposition	-3557 Sep 25 j 19:57	4° $\text{H}$ 58'54	-15°-36'-59				
min. Earth dist.	-3557 Sep 25 j 11:36	4° $\text{H}$ 59'18	47.89621 AU	conjunction	-3548 Apr 01 j 12:06	13° $\text{H}$ 06'21	-13°-45'-26
direct	-3557 Dec 16 j 04:04	3° $\text{H}$ 59'37		minimum elong	-3548 Apr 01 j 12:18	13° $\text{H}$ 06'22	13°45'30
				max. Earth dist.	-3548 Apr 01 j 09:24	13° $\text{H}$ 06'12	49.46100 AU
conjunction	-3556 Mar 24 j 12:36	5° $\text{H}$ 26'28	-14°-56'00	retrograde	-3548 Jul 12 j 20:26	14° $\text{H}$ 35'52	
minimum elong	-3556 Mar 24 j 12:49	5° $\text{H}$ 26'29	14°56'04	opposition	-3548 Oct 03 j 11:42	13° $\text{H}$ 36'07	-14°-14'-43
max. Earth dist.	-3556 Mar 24 j 21:14	5° $\text{H}$ 26'57	49.81189 AU	min. Earth dist.	-3548 Oct 03 j 15:13	13° $\text{H}$ 35'57	47.48795 AU
retrograde	-3556 Jul 05 j 06:46	6° $\text{H}$ 55'56		direct	-3548 Dec 24 j 02:46	12° $\text{H}$ 36'35	
opposition	-3556 Sep 26 j 00:19	5° $\text{H}$ 56'11	-15°-28'-50				
min. Earth dist.	-3556 Sep 25 j 17:43	5° $\text{H}$ 56'29	47.86756 AU	conjunction	-3547 Apr 02 j 18:02	14° $\text{H}$ 03'54	-13°-35'-34
direct	-3556 Dec 16 j 07:19	4° $\text{H}$ 56'53		minimum elong	-3547 Apr 02 j 18:15	14° $\text{H}$ 03'55	13°35'37
				max. Earth dist.	-3547 Apr 02 j 13:03	14° $\text{H}$ 03'37	49.39640 AU
conjunction	-3555 Mar 25 j 18:25	6° $\text{H}$ 23'46	-14°-48'-1	retrograde	-3547 Jul 14 j 04:42	15° $\text{H}$ 33'26	
minimum elong	-3555 Mar 25 j 18:36	6° $\text{H}$ 23'47	14°48'05	opposition	-3547 Oct 04 j 16:10	14° $\text{H}$ 33'40	-14°-4'-22
max. Earth dist.	-3555 Mar 26 j 01:53	6° $\text{H}$ 24'12	49.78311 AU	min. Earth dist.	-3547 Oct 04 j 20:38	14° $\text{H}$ 33'27	47.42019 AU
retrograde	-3555 Jul 06 j 09:32	7° $\text{H}$ 53'13		direct	-3547 Dec 25 j 04:42	13° $\text{H}$ 34'05	
opposition	-3555 Sep 27 j 04:40	6° $\text{H}$ 53'29	-15°-20'-25				
min. Earth dist.	-3555 Sep 26 j 22:08	6° $\text{H}$ 53'48	47.83588 AU	conjunction	-3546 Apr 03 j 23:55	15° $\text{H}$ 01'29	-13°-25'-27
direct	-3555 Dec 17 j 13:47	5° $\text{H}$ 54'12		minimum elong	-3546 Apr 04 j 00:08	15° $\text{H}$ 01'30	13°25'31
				max. Earth dist.	-3546 Apr 03 j 18:30	15° $\text{H}$ 01'11	49.32830 AU
conjunction	-3554 Mar 26 j 23:59	7° $\text{H}$ 21'07	-14°-39'-46	retrograde	-3546 Jul 15 j 11:38	16° $\text{H}$ 31'04	
minimum elong	-3554 Mar 27 j 00:12	7° $\text{H}$ 21'08	14°39'51	opposition	-3546 Oct 05 j 20:44	15° $\text{H}$ 31'15	-13°-53'-45
max. Earth dist.	-3554 Mar 27 j 05:42	7° $\text{H}$ 21'26	49.75096 AU	min. Earth dist.	-3546 Oct 06 j 02:53	15° $\text{H}$ 30'58	47.34909 AU
retrograde	-3554 Jul 07 j 13:14	8° $\text{H}$ 50'34		direct	-3546 Dec 26 j 08:08	14° $\text{H}$ 31'38	
opposition	-3554 Sep 28 j 09:10	7° $\text{H}$ 50'52	-15°-11'-45				
min. Earth dist.	-3554 Sep 28 j 04:36	7° $\text{H}$ 51'05	47.80064 AU	conjunction	-3545 Apr 05 j 05:58	15° $\text{H}$ 59'08	-13°-15'-4
direct	-3554 Dec 18 j 20:12	6° $\text{H}$ 51'35		minimum elong	-3545 Apr 05 j 06:11	15° $\text{H}$ 59'09	13°15'07
				max. Earth dist.	-3545 Apr 04 j 23:23	15° $\text{H}$ 58'45	49.25727 AU
conjunction	-3553 Mar 28 j 05:59	8° $\text{H}$ 18'33	-14°-31'-17	retrograde	-3545 Jul 16 j 15:51	17° $\text{H}$ 28'46	
minimum elong	-3553 Mar 28 j 06:10	8° $\text{H}$ 18'33	14°31'22	opposition	-3545 Oct 07 j 01:05	16° $\text{H}$ 28'56	-13°-42'-51
max. Earth dist.	-3553 Mar 28 j 11:20	8° $\text{H}$ 18'51	49.71499 AU	min. Earth dist.	-3545 Oct 07 j 07:13	16° $\text{H}$ 28'39	47.27513 AU
retrograde	-3553 Jul 08 j 18:09	9° $\text{H}$ 48'01		direct	-3545 Dec 27 j 13:36	15° $\text{H}$ 29'15	
opposition	-3553 Sep 29 j 13:29	8° $\text{H}$ 48'20	-15°-2'-49				
min. Earth dist.	-3553 Sep 29 j 09:59	8° $\text{H}$ 48'30	47.76107 AU	conjunction	-3544 Apr 05 j 12:04	16° $\text{H}$ 56'53	-13°-4'-26
direct	-3553 Dec 20 j 01:42	7° $\text{H}$ 49'02		minimum elong	-3544 Apr 05 j 12:16	16° $\text{H}$ 56'54	13°04'30
				max. Earth dist.	-3544 Apr 05 j 03:41	16° $\text{H}$ 56'25	49.18331 AU
conjunction	-3552 Mar 28 j 11:57	9° $\text{H}$ 16'03	-14°-22'-34	retrograde	-3544 Jul 16 j 19:24	18° $\text{H}$ 26'36	
minimum elong	-3552 Mar 28 j 12:10	9° $\text{H}$ 16'04	14°22'38	opposition	-3544 Oct 07 j 05:44	17° $\text{H}$ 26'46	-13°-31'-42
max. Earth dist.	-3552 Mar 28 j 14:41	9° $\text{H}$ 16'13	49.67441 AU	min. Earth dist.	-3544 Oct 07 j 13:44	17° $\text{H}$ 26'23	47.19833 AU
retrograde	-3552 Jul 09 j 02:10	10° $\text{H}$ 45'32		direct	-3544 Dec 27 j 20:31	16° $\text{H}$ 27'03	
opposition	-3552 Sep 29 j 17:57	9° $\text{H}$ 45'52	-14°-53'-40				
min. Earth dist.	-3552 Sep 29 j 15:45	9° $\text{H}$ 45'58	47.71666 AU	conjunction	-3543 Apr 06 j 18:12	17° $\text{H}$ 54'49	-12°-53'-32
direct	-3552 Dec 20 j 04:02	8° $\text{H}$ 46'33		minimum elong	-3543 Apr 06 j 18:26	17° $\text{H}$ 54'49	12°53'35
				max. Earth dist.	-3543 Apr 06 j 09:49	17° $\text{H}$ 54'20	49.10653 AU
conjunction	-3551 Mar 29 j 17:58	10° $\text{H}$ 13'37	-14°-13'-38	retrograde	-3543 Jul 17 j 23:54	19° $\text{H}$ 24'37	
minimum elong	-3551 Mar 29 j 18:10	10° $\text{H}$ 13'38	14°13'41	opposition	-3543 Oct 08 j 10:17	18° $\text{H}$ 24'47	-13°-20'-16
max. Earth dist.	-3551 Mar 29 j 19:35	10° $\text{H}$ 13'43	49.62860 AU	min. Earth dist.	-3543 Oct 08 j 18:49	18° $\text{H}$ 24'22	47.11843 AU
retrograde	-3551 Jul 10 j 07:54	11° $\text{H}$ 43'07		direct	-3543 Dec 29 j 02:38	17° $\text{H}$ 25'02	



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 23

Attention, astronomical year style is used: The year -3542 in astronomical counting style is the year 3543 BCE in historical counting style.

conjunction	-3542 Apr 08 j 00:18	18° <del>✕</del> 52'57	-12°-42'-23	retrograde	-3534 Jul 27 j 08:14	28° <del>✕</del> 15'10	
minimum elong	-3542 Apr 08 j 00:30	18° <del>✕</del> 52'57	12°42'26	opposition	-3534 Oct 17 j 06:08	27° <del>✕</del> 14'51	-11°-26'-9
max. Earth dist.	-3542 Apr 07 j 13:37	18° <del>✕</del> 52'20	49.02659 AU	min. Earth dist.	-3534 Oct 18 j 03:15	27° <del>✕</del> 13'50	46.19728 AU
retrograde	-3542 Jul 19 j 08:25	20° <del>✕</del> 22'52		direct	-3533 Jan 06 j 23:12	26° <del>✕</del> 14'20	
opposition	-3542 Oct 09 j 14:52	19° <del>✕</del> 23'02	-13°-8'-34				
min. Earth dist.	-3542 Oct 10 j 00:32	19° <del>✕</del> 22'34	47.03521 AU	conjunction	-3533 Apr 17 j 11:49	27° <del>✕</del> 43'44	-10°-51'-10
direct	-3542 Dec 30 j 04:22	18° <del>✕</del> 23'15		minimum elong	-3533 Apr 17 j 12:02	27° <del>✕</del> 43'45	10°51'12
				max. Earth dist.	-3533 Apr 16 j 12:46	27° <del>✕</del> 42'24	48.09940 AU
conjunction	-3541 Apr 09 j 06:40	19° <del>✕</del> 51'19	-12°-30'-58	retrograde	-3533 Jul 28 j 11:33	29° <del>✕</del> 14'41	
minimum elong	-3541 Apr 09 j 06:53	19° <del>✕</del> 51'20	12°31'01	opposition	-3533 Oct 18 j 11:17	28° <del>✕</del> 14'17	-11°-12'-11
max. Earth dist.	-3541 Apr 08 j 19:13	19° <del>✕</del> 50'40	48.94279 AU	min. Earth dist.	-3533 Oct 19 j 08:46	28° <del>✕</del> 13'14	46.07441 AU
retrograde	-3541 Jul 20 j 15:34	21° <del>✕</del> 21'22		direct	-3532 Jan 08 j 07:26	27° <del>✕</del> 13'38	
opposition	-3541 Oct 10 j 19:38	20° <del>✕</del> 21'31	-12°-56'-38				
min. Earth dist.	-3541 Oct 11 j 07:16	20° <del>✕</del> 20'58	46.94766 AU	conjunction	-3532 Apr 17 j 18:41	28° <del>✕</del> 43'15	-10°-37'-34
direct	-3541 Dec 31 j 08:11	19° <del>✕</del> 21'42		minimum elong	-3532 Apr 17 j 18:54	28° <del>✕</del> 43'16	10°37'34
				max. Earth dist.	-3532 Apr 16 j 17:24	28° <del>✕</del> 41'47	47.97672 AU
conjunction	-3540 Apr 09 j 13:10	20° <del>✕</del> 49'56	-12°-19'-20		-3532 Jun 22 j 02:41	0° <del>∇</del>	
minimum elong	-3540 Apr 09 j 13:22	20° <del>✕</del> 49'57	12°19'22	retrograde	-3532 Jul 28 j 19:22	0° <del>∇</del> 14'22	
max. Earth dist.	-3540 Apr 09 j 00:04	20° <del>✕</del> 49'11	48.85448 AU		-3532 Sep 03 j 16:36	30° <del>℞</del> <del>✕</del>	
retrograde	-3540 Jul 20 j 21:40	22° <del>✕</del> 20'05		opposition	-3532 Oct 18 j 16:28	29° <del>✕</del> 13'54	-10°-57'-55
opposition	-3540 Oct 11 j 00:17	21° <del>✕</del> 20'13	-12°-44'-26	min. Earth dist.	-3532 Oct 19 j 14:58	29° <del>✕</del> 12'48	45.94888 AU
min. Earth dist.	-3540 Oct 11 j 12:35	21° <del>✕</del> 19'38	46.85526 AU	direct	-3531 Jan 08 j 11:05	28° <del>✕</del> 13'10	
direct	-3540 Dec 31 j 13:45	20° <del>✕</del> 20'20		max. Earth dist.	-3531 Apr 18 j 00:05	29° <del>✕</del> 41'31	47.85130 AU
conjunction	-3539 Apr 10 j 19:41	21° <del>✕</del> 48'46	-12°-7'-27	conjunction	-3531 Apr 19 j 01:46	29° <del>✕</del> 43'00	-10°-23'-41
minimum elong	-3539 Apr 10 j 19:55	21° <del>✕</del> 48'46	12°07'29	minimum elong	-3531 Apr 19 j 01:58	29° <del>✕</del> 43'01	10°23'42
max. Earth dist.	-3539 Apr 10 j 04:15	21° <del>✕</del> 47'52	48.76091 AU		-3531 May 01 j 08:09	0° <del>∇</del>	
retrograde	-3539 Jul 22 j 02:25	23° <del>✕</del> 19'00		retrograde	-3531 Jul 30 j 02:41	1° <del>∇</del> 14'19	
opposition	-3539 Oct 12 j 05:17	22° <del>✕</del> 19'06	-12°-32'-1	opposition	-3531 Oct 19 j 21:53	0° <del>∇</del> 13'47	-10°-43'-23
min. Earth dist.	-3539 Oct 12 j 19:59	22° <del>✕</del> 18'24	46.75754 AU	min. Earth dist.	-3531 Oct 20 j 21:48	0° <del>∇</del> 12'37	45.82048 AU
direct	-3538 Jan 01 j 20:14	21° <del>✕</del> 19'09			-3531 Oct 31 j 18:34	30° <del>℞</del> <del>✕</del>	
max. Earth dist.	-3538 Apr 11 j 10:03	22° <del>✕</del> 46'47	48.66206 AU	direct	-3530 Jan 09 j 15:42	29° <del>✕</del> 12'57	
					-3530 Mar 19 j 05:23	0° <del>∇</del>	
conjunction	-3538 Apr 12 j 02:13	22° <del>✕</del> 47'43	-11°-55'-21	max. Earth dist.	-3530 Apr 19 j 05:51	0° <del>∇</del> 41'29	47.72306 AU
minimum elong	-3538 Apr 12 j 02:25	22° <del>✕</del> 47'44	11°55'22				
retrograde	-3538 Jul 23 j 05:51	24° <del>✕</del> 18'05		conjunction	-3530 Apr 20 j 08:43	0° <del>∇</del> 43'03	-10°-9'-31
opposition	-3538 Oct 13 j 10:13	23° <del>✕</del> 18'07	-12°-19'-21	minimum elong	-3530 Apr 20 j 08:56	0° <del>∇</del> 43'04	10°09'32
min. Earth dist.	-3538 Oct 14 j 01:45	23° <del>✕</del> 17'22	46.65440 AU	retrograde	-3530 Jul 31 j 10:42	2° <del>∇</del> 14'34	
direct	-3537 Jan 03 j 03:49	22° <del>✕</del> 18'04		opposition	-3530 Oct 21 j 03:16	1° <del>∇</del> 13'59	-10°-28'-33
				min. Earth dist.	-3530 Oct 22 j 03:31	1° <del>∇</del> 12'48	45.68898 AU
conjunction	-3537 Apr 13 j 08:48	23° <del>✕</del> 46'46	-11°-43'00	direct	-3529 Jan 10 j 20:38	0° <del>∇</del> 13'03	
minimum elong	-3537 Apr 13 j 09:02	23° <del>✕</del> 46'47	11°43'03	max. Earth dist.	-3529 Apr 20 j 11:13	1° <del>∇</del> 41'46	47.59120 AU
max. Earth dist.	-3537 Apr 12 j 14:00	23° <del>✕</del> 45'42	48.55799 AU				
retrograde	-3537 Jul 24 j 13:27	25° <del>✕</del> 17'15		conjunction	-3529 Apr 21 j 16:02	1° <del>∇</del> 43'27	-9°-55'-6
opposition	-3537 Oct 14 j 15:03	24° <del>✕</del> 17'12	-12°-6'-26	minimum elong	-3529 Apr 21 j 16:14	1° <del>∇</del> 43'28	9°55'07
min. Earth dist.	-3537 Oct 15 j 08:08	24° <del>✕</del> 16'23	46.54634 AU	retrograde	-3529 Aug 01 j 17:26	3° <del>∇</del> 15'12	
direct	-3536 Jan 04 j 07:33	23° <del>✕</del> 17'03		opposition	-3529 Oct 22 j 08:47	2° <del>∇</del> 14'33	-10°-13'-27
				min. Earth dist.	-3529 Oct 23 j 11:22	2° <del>∇</del> 13'15	45.55364 AU
conjunction	-3536 Apr 13 j 15:37	24° <del>✕</del> 45'55	-11°-30'-26	direct	-3528 Jan 12 j 02:57	1° <del>∇</del> 13'32	
minimum elong	-3536 Apr 13 j 15:50	24° <del>✕</del> 45'55	11°30'27				
max. Earth dist.	-3536 Apr 12 j 19:56	24° <del>✕</del> 44'47	48.44906 AU	conjunction	-3528 Apr 21 j 23:38	2° <del>∇</del> 44'13	-9°-40'-26
retrograde	-3536 Jul 24 j 21:15	26° <del>✕</del> 16'29		minimum elong	-3528 Apr 21 j 23:51	2° <del>∇</del> 44'14	9°40'27
opposition	-3536 Oct 14 j 20:07	25° <del>✕</del> 16'21	-11°-53'-17	max. Earth dist.	-3528 Apr 20 j 18:12	2° <del>∇</del> 42'30	47.45521 AU
min. Earth dist.	-3536 Oct 15 j 15:02	25° <del>✕</del> 15'26	46.43366 AU	retrograde	-3528 Aug 01 j 22:12	4° <del>∇</del> 16'12	
direct	-3535 Jan 04 j 11:18	24° <del>✕</del> 16'04		opposition	-3528 Oct 22 j 14:28	3° <del>∇</del> 15'29	-9°-58'-6
				min. Earth dist.	-3528 Oct 23 j 17:43	3° <del>∇</del> 14'09	45.41373 AU
conjunction	-3535 Apr 14 j 22:14	25° <del>✕</del> 45'06	-11°-17'-36	direct	-3527 Jan 12 j 11:02	2° <del>∇</del> 14'22	
minimum elong	-3535 Apr 14 j 22:26	25° <del>✕</del> 45'07	11°17'38	max. Earth dist.	-3527 Apr 21 j 22:58	3° <del>∇</del> 43'27	47.31439 AU
max. Earth dist.	-3535 Apr 14 j 01:06	25° <del>✕</del> 43'53	48.33599 AU				
retrograde	-3535 Jul 26 j 04:05	27° <del>✕</del> 15'47		conjunction	-3527 Apr 23 j 07:04	3° <del>∇</del> 45'20	-9°-25'-30
opposition	-3535 Oct 16 j 01:02	26° <del>✕</del> 15'34	-11°-39'-51	minimum elong	-3527 Apr 23 j 07:16	3° <del>∇</del> 45'21	9°25'31
min. Earth dist.	-3535 Oct 16 j 20:11	26° <del>✕</del> 14'38	46.31713 AU	retrograde	-3527 Aug 03 j 06:00	5° <del>∇</del> 17'34	
direct	-3534 Jan 05 j 15:50	25° <del>✕</del> 15'09		opposition	-3527 Oct 23 j 20:19	4° <del>∇</del> 16'47	-9°-42'-28
max. Earth dist.	-3534 Apr 15 j 06:01	26° <del>✕</del> 43'03	48.21921 AU	min. Earth dist.	-3527 Oct 25 j 01:15	4° <del>∇</del> 15'21	45.26896 AU
				direct	-3526 Jan 13 j 15:56	3° <del>∇</del> 15'32	
conjunction	-3534 Apr 16 j 04:56	26° <del>✕</del> 44'22	-11°-4'-31	max. Earth dist.	-3526 Apr 23 j 05:52	4° <del>∇</del> 44'52	47.16854 AU
minimum elong	-3534 Apr 16 j 05:08	26° <del>✕</del> 44'23	11°04'32				



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 24

Attention, astronomical year style is used: The year -3526 in astronomical counting style is the year 3527 BCE in historical counting style.

conjunction	-3526 Apr 24 j 14:52	4°Y46'48	-9°-10'-20	opposition	-3518 Nov 02 j 05:31	13°Y41'38	-7°-9'-14
minimum elong	-3526 Apr 24 j 15:04	4°Y46'49	9°10'21	min. Earth dist.	-3518 Nov 03 j 19:58	13°Y39'43	43.79238 AU
retrograde	-3526 Aug 04 j 14:31	6°Y19'16		direct	-3517 Jan 23 j 03:09	12°Y38'55	
opposition	-3526 Oct 25 j 02:14	5°Y18'23	-9°-26'-35	max. Earth dist.	-3517 May 02 j 20:27	14°Y10'36	45.69016 AU
min. Earth dist.	-3526 Oct 26 j 08:58	5°Y16'52	45.11912 AU				
direct	-3525 Jan 14 j 20:28	4°Y16'59		conjunction	-3517 May 04 j 17:22	14°Y13'19	-6°-41'-40
max. Earth dist.	-3525 Apr 24 j 11:47	5°Y46'30	47.01791 AU	minimum elong	-3517 May 04 j 17:32	14°Y13'20	6°41'39
				retrograde	-3517 Aug 14 j 11:52	15°Y48'24	
conjunction	-3525 Apr 25 j 22:41	5°Y48'33	-8°-54'-54	opposition	-3517 Nov 03 j 12:40	14°Y46'21	-6°-50'-43
minimum elong	-3525 Apr 25 j 22:52	5°Y48'34	8°54'54	min. Earth dist.	-3517 Nov 05 j 04:53	14°Y44'19	43.61406 AU
retrograde	-3525 Aug 06 j 00:22	7°Y21'15		direct	-3516 Jan 24 j 10:39	13°Y43'28	
opposition	-3525 Oct 26 j 08:11	6°Y20'15	-9°-10'-25	max. Earth dist.	-3516 May 03 j 05:14	15°Y15'33	45.51108 AU
min. Earth dist.	-3525 Oct 27 j 15:27	6°Y18'42	44.96463 AU				
direct	-3524 Jan 16 j 00:34	5°Y18'42		conjunction	-3516 May 05 j 02:42	15°Y18'18	-6°-23'-44
max. Earth dist.	-3524 Apr 24 j 17:48	6°Y48'24	46.86262 AU	minimum elong	-3516 May 05 j 02:51	15°Y18'19	6°23'43
				retrograde	-3516 Aug 14 j 19:32	16°Y53'46	
conjunction	-3524 Apr 26 j 06:37	6°Y50'34	-8°-39'-12	opposition	-3516 Nov 03 j 20:01	15°Y51'35	-6°-31'-55
minimum elong	-3524 Apr 26 j 06:49	6°Y50'35	8°39'13	min. Earth dist.	-3516 Nov 05 j 13:40	15°Y49'28	43.43167 AU
retrograde	-3524 Aug 06 j 06:20	8°Y23'31		direct	-3515 Jan 24 j 18:27	14°Y48'31	
opposition	-3524 Oct 26 j 14:17	7°Y22'23	-8°-53'-59	max. Earth dist.	-3515 May 04 j 12:34	16°Y20'54	45.32784 AU
min. Earth dist.	-3524 Oct 27 j 23:50	7°Y20'43	44.80588 AU				
direct	-3523 Jan 16 j 08:37	6°Y20'40		conjunction	-3515 May 06 j 12:05	16°Y23'48	-6°-5'-33
max. Earth dist.	-3523 Apr 26 j 01:31	7°Y50'39	46.70348 AU	minimum elong	-3515 May 06 j 12:14	16°Y23'48	6°05'31
				retrograde	-3515 Aug 16 j 06:55	17°Y59'38	
conjunction	-3523 Apr 27 j 14:41	7°Y52'51	-8°-23'-15	opposition	-3515 Nov 05 j 03:33	16°Y57'18	-6°-12'-49
minimum elong	-3523 Apr 27 j 14:52	7°Y52'52	8°23'15	min. Earth dist.	-3515 Nov 06 j 21:54	16°Y55'09	43.24498 AU
retrograde	-3523 Aug 07 j 10:19	9°Y26'02		direct	-3514 Jan 25 j 23:19	15°Y54'03	
opposition	-3523 Oct 27 j 20:28	8°Y24'46	-8°-37'-17	max. Earth dist.	-3514 May 05 j 20:23	17°Y26'46	45.13993 AU
min. Earth dist.	-3523 Oct 29 j 06:18	8°Y23'05	44.64353 AU				
direct	-3522 Jan 17 j 18:38	7°Y22'53		conjunction	-3514 May 07 j 21:39	17°Y29'46	-5°-47'-5
max. Earth dist.	-3522 Apr 27 j 07:06	8°Y53'02	46.54100 AU	minimum elong	-3514 May 07 j 21:47	17°Y29'47	5°47'03
				retrograde	-3514 Aug 17 j 16:55	19°Y06'00	
conjunction	-3522 Apr 28 j 22:33	8°Y55'23	-8°-7'-2	opposition	-3514 Nov 06 j 11:25	18°Y03'30	-5°-53'-26
minimum elong	-3522 Apr 28 j 22:44	8°Y55'24	8°07'02	min. Earth dist.	-3514 Nov 08 j 08:06	18°Y01'14	43.05361 AU
retrograde	-3522 Aug 08 j 17:54	10°Y28'51		direct	-3513 Jan 27 j 06:45	17°Y00'02	
opposition	-3522 Oct 29 j 02:48	9°Y27'26	-8°-20'-16	max. Earth dist.	-3513 May 07 j 05:30	18°Y33'09	44.94753 AU
min. Earth dist.	-3522 Oct 30 j 13:58	9°Y25'41	44.47822 AU				
direct	-3521 Jan 19 j 00:43	8°Y25'22		conjunction	-3513 May 09 j 07:36	18°Y36'13	-5°-28'-20
max. Earth dist.	-3521 Apr 28 j 15:12	9°Y55'50	46.37565 AU	minimum elong	-3513 May 09 j 07:44	18°Y36'14	5°28'19
				retrograde	-3513 Aug 19 j 01:21	20°Y12'49	
conjunction	-3521 Apr 30 j 06:53	9°Y58'12	-7°-50'-31	opposition	-3513 Nov 07 j 19:13	19°Y10'09	-5°-33'-45
minimum elong	-3521 Apr 30 j 07:04	9°Y58'12	7°50'30	min. Earth dist.	-3513 Nov 09 j 16:22	19°Y07'51	42.85784 AU
retrograde	-3521 Aug 10 j 01:14	11°Y31'57		direct	-3512 Jan 28 j 17:23	18°Y06'28	
opposition	-3521 Oct 30 j 09:14	10°Y30'24	-8°-2'-58	max. Earth dist.	-3512 May 07 j 12:56	19°Y39'52	44.75080 AU
min. Earth dist.	-3521 Oct 31 j 21:32	10°Y28'35	44.31021 AU				
direct	-3520 Jan 20 j 07:13	9°Y28'10		conjunction	-3512 May 09 j 17:38	19°Y43'07	-5°-9'-19
max. Earth dist.	-3520 Apr 28 j 22:15	10°Y58'54	46.20795 AU	minimum elong	-3512 May 09 j 17:46	19°Y43'08	5°09'17
				retrograde	-3512 Aug 19 j 10:20	21°Y20'07	
conjunction	-3520 Apr 30 j 15:16	11°Y01'21	-7°-33'-44	opposition	-3512 Nov 08 j 03:23	20°Y17'15	-5°-13'-46
minimum elong	-3520 Apr 30 j 15:26	11°Y01'21	7°33'44	min. Earth dist.	-3512 Nov 10 j 02:25	20°Y14'51	42.65817 AU
retrograde	-3520 Aug 10 j 11:46	12°Y35'24		direct	-3511 Jan 29 j 02:20	19°Y13'20	
opposition	-3520 Oct 30 j 15:50	11°Y33'43	-7°-45'-21	max. Earth dist.	-3511 May 08 j 22:52	20°Y47'11	44.55033 AU
min. Earth dist.	-3520 Nov 01 j 04:20	11°Y31'53	44.14002 AU				
direct	-3519 Jan 20 j 11:43	10°Y31'19		conjunction	-3511 May 11 j 03:47	20°Y50'28	-4°-50'-1
max. Earth dist.	-3519 Apr 30 j 05:18	12°Y02'20	46.03787 AU	minimum elong	-3511 May 11 j 03:55	20°Y50'29	4°50'00
				retrograde	-3511 Aug 20 j 18:04	22°Y27'54	
conjunction	-3519 May 01 j 23:41	12°Y04'53	-7°-16'-40	opposition	-3511 Nov 09 j 11:44	21°Y24'50	-4°-53'-30
minimum elong	-3519 May 01 j 23:52	12°Y04'53	7°16'39	min. Earth dist.	-3511 Nov 11 j 11:40	21°Y22'22	42.45501 AU
retrograde	-3519 Aug 11 j 21:45	13°Y39'15		direct	-3510 Jan 30 j 12:00	20°Y20'40	
opposition	-3519 Oct 31 j 22:43	12°Y37'26	-7°-27'-27	max. Earth dist.	-3510 May 10 j 07:25	21°Y54'54	44.34677 AU
min. Earth dist.	-3519 Nov 02 j 12:59	12°Y35'31	43.96750 AU				
direct	-3518 Jan 21 j 17:55	11°Y34'53		conjunction	-3510 May 12 j 14:06	21°Y58'18	-4°-30'-26
max. Earth dist.	-3518 May 01 j 13:50	13°Y06'18	45.86550 AU	minimum elong	-3510 May 12 j 14:13	21°Y58'18	4°30'24
				retrograde	-3510 Aug 22 j 05:32	23°Y36'10	
conjunction	-3518 May 03 j 08:27	13°Y08'52	-6°-59'-18	opposition	-3510 Nov 10 j 20:05	22°Y32'54	-4°-32'-54
minimum elong	-3518 May 03 j 08:37	13°Y08'52	6°59'18	min. Earth dist.	-3510 Nov 12 j 20:41	22°Y30'24	42.24918 AU
retrograde	-3518 Aug 13 j 04:16	14°Y43'34		direct	-3509 Jan 31 j 18:26	21°Y28'30	



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 25

Attention, astronomical year style is used: The year -3509 in astronomical counting style is the year 3510 BCE in historical counting style.

max. Earth dist.	-3509 May 11 j 16:58	23° $\Upsilon$ 03'10	44.14051 AU	min. Earth dist.	-3502 Nov 22 j 11:33	1° $\mathcal{B}$ 59'03	40.51644 AU
				direct	-3501 Feb 09 j 22:03	0° $\mathcal{B}$ 55'45	
conjunction	-3509 May 14 j 00:46	23° $\Upsilon$ 06'39	-4°-10'-33	max. Earth dist.	-3501 May 21 j 06:49	2° $\mathcal{B}$ 34'46	42.40128 AU
minimum elong	-3509 May 14 j 00:53	23° $\Upsilon$ 06'40	4°10'32				
retrograde	-3509 Aug 23 j 17:42	24° $\Upsilon$ 44'59		conjunction	-3501 May 23 j 23:43	2° $\mathcal{B}$ 39'01	-1°-21'-11
opposition	-3509 Nov 12 j 04:57	23° $\Upsilon$ 41'32	-4°-12'00	minimum elong	-3501 May 23 j 23:46	2° $\mathcal{B}$ 39'01	1°21'08
min. Earth dist.	-3509 Nov 14 j 07:14	23° $\Upsilon$ 38'55	42.04093 AU	retrograde	-3501 Sep 02 j 15:09	4° $\mathcal{B}$ 21'50	
direct	-3508 Feb 02 j 01:45	22° $\Upsilon$ 36'53		opposition	-3501 Nov 21 j 12:50	3° $\mathcal{B}$ 16'44	-1°-13'-34
max. Earth dist.	-3508 May 12 j 03:23	24° $\Upsilon$ 12'04	43.93215 AU	min. Earth dist.	-3501 Nov 23 j 23:11	3° $\mathcal{B}$ 13'36	40.28484 AU
				direct	-3500 Feb 11 j 11:36	2° $\mathcal{B}$ 10'03	
conjunction	-3508 May 14 j 11:35	24° $\Upsilon$ 15'36	-3°-50'-24	max. Earth dist.	-3500 May 21 j 17:43	3° $\mathcal{B}$ 49'34	42.16828 AU
minimum elong	-3508 May 14 j 11:41	24° $\Upsilon$ 15'36	3°50'21				
retrograde	-3508 Aug 24 j 04:53	25° $\Upsilon$ 54'25		conjunction	-3500 May 24 j 12:55	3° $\mathcal{B}$ 54'00	0°-58'-44
opposition	-3508 Nov 12 j 13:52	24° $\Upsilon$ 50'46	-3°-50'-47	minimum elong	-3500 May 24 j 12:57	3° $\mathcal{B}$ 54'00	0°58'41
min. Earth dist.	-3508 Nov 14 j 15:56	24° $\Upsilon$ 48'09	41.83075 AU	retrograde	-3500 Sep 03 j 02:42	5° $\mathcal{B}$ 37'25	
direct	-3507 Feb 02 j 11:25	23° $\Upsilon$ 45'53		opposition	-3500 Nov 22 j 00:07	4° $\mathcal{B}$ 32'03	0°-49'-53
max. Earth dist.	-3507 May 13 j 12:29	25° $\Upsilon$ 21'31	43.72184 AU	min. Earth dist.	-3500 Nov 24 j 11:50	4° $\mathcal{B}$ 28'50	40.04999 AU
				direct	-3499 Feb 11 j 23:07	3° $\mathcal{B}$ 25'02	
conjunction	-3507 May 15 j 22:36	25° $\Upsilon$ 25'11	-3°-29'-56	max. Earth dist.	-3499 May 23 j 06:47	5° $\mathcal{B}$ 05'12	41.93208 AU
minimum elong	-3507 May 15 j 22:41	25° $\Upsilon$ 25'12	3°29'55				
retrograde	-3507 Aug 25 j 14:52	27° $\Upsilon$ 04'31		conjunction	-3499 May 26 j 02:34	5° $\mathcal{B}$ 09'41	0°-36'-1
opposition	-3507 Nov 13 j 23:10	26° $\Upsilon$ 00'41	-3°-29'-15	minimum elong	-3499 May 26 j 02:35	5° $\mathcal{B}$ 09'41	0°35'58
min. Earth dist.	-3507 Nov 16 j 02:53	25° $\Upsilon$ 57'59	41.61881 AU	retrograde	-3499 Sep 04 j 14:32	6° $\mathcal{B}$ 53'45	
direct	-3506 Feb 03 j 21:11	24° $\Upsilon$ 55'35		opposition	-3499 Nov 23 j 11:49	5° $\mathcal{B}$ 48'04	0°-25'-54
max. Earth dist.	-3506 May 14 j 23:55	26° $\Upsilon$ 31'49	43.50963 AU	min. Earth dist.	-3499 Nov 26 j 00:55	5° $\mathcal{B}$ 44'46	39.81234 AU
				direct	-3498 Feb 13 j 10:13	4° $\mathcal{B}$ 40'43	
conjunction	-3506 May 17 j 09:56	26° $\Upsilon$ 35'30	-3°-9'-12	max. Earth dist.	-3498 May 24 j 19:26	6° $\mathcal{B}$ 21'30	41.69351 AU
minimum elong	-3506 May 17 j 10:01	26° $\Upsilon$ 35'30	3°09'09				
retrograde	-3506 Aug 26 j 23:07	28° $\Upsilon$ 15'23		conjunction	-3498 May 27 j 16:18	6° $\mathcal{B}$ 26'05	0°-13'-3
opposition	-3506 Nov 15 j 08:43	27° $\Upsilon$ 11'22	-3°-7'-25	minimum elong	-3498 May 27 j 16:19	6° $\mathcal{B}$ 26'05	0°12'59
min. Earth dist.	-3506 Nov 17 j 13:01	27° $\Upsilon$ 08'37	41.40467 AU	behind sun begin	-3498 May 27 j 12:30	6° $\mathcal{B}$ 25'51	
direct	-3505 Feb 05 j 08:54	26° $\Upsilon$ 06'02		behind sun end	-3498 May 27 j 20:08	6° $\mathcal{B}$ 26'20	
max. Earth dist.	-3505 May 16 j 09:31	27° $\Upsilon$ 42'45	43.29502 AU	retrograde	-3498 Sep 06 j 05:26	8° $\mathcal{B}$ 10'48	
				opposition	-3498 Nov 24 j 23:43	7° $\mathcal{B}$ 04'50	0°-1'-37
conjunction	-3505 May 18 j 21:34	27° $\Upsilon$ 46'36	-2°-48'-9	min. Earth dist.	-3498 Nov 27 j 12:52	7° $\mathcal{B}$ 01'31	39.57267 AU
minimum elong	-3505 May 18 j 21:39	27° $\Upsilon$ 46'36	2°48'07	asc. node	-3498 Dec 19 j 11:59	6° $\mathcal{B}$ 34'03	
retrograde	-3505 Aug 28 j 11:38	29° $\Upsilon$ 27'02		direct	-3497 Feb 14 j 20:09	5° $\mathcal{B}$ 57'07	
opposition	-3505 Nov 16 j 18:22	28° $\Upsilon$ 22'51	-2°-45'-15	max. Earth dist.	-3497 May 26 j 08:13	7° $\mathcal{B}$ 38'33	41.45292 AU
min. Earth dist.	-3505 Nov 18 j 23:38	28° $\Upsilon$ 20'03	41.18800 AU				
direct	-3504 Feb 06 j 16:18	27° $\Upsilon$ 17'17		conjunction	-3497 May 29 j 06:34	7° $\mathcal{B}$ 43'15	0°10'16
max. Earth dist.	-3504 May 16 j 20:40	28° $\Upsilon$ 54'35	43.07725 AU	minimum elong	-3497 May 29 j 06:33	7° $\mathcal{B}$ 43'15	0°10'22
				behind sun begin	-3497 May 29 j 01:28	7° $\mathcal{B}$ 42'56	
conjunction	-3504 May 19 j 09:42	28° $\Upsilon$ 58'30	-2°-26'-50	behind sun end	-3497 May 29 j 11:39	7° $\mathcal{B}$ 43'34	
minimum elong	-3504 May 19 j 09:46	28° $\Upsilon$ 58'31	2°26'47	retrograde	-3497 Sep 07 j 20:24	9° $\mathcal{B}$ 28'38	
	-3504 Jul 01 j 02:02	0° $\mathcal{B}$		opposition	-3497 Nov 26 j 12:03	8° $\mathcal{B}$ 22'22	0°22'57
retrograde	-3504 Aug 29 j 00:07	0° $\mathcal{B}$ 39'33		min. Earth dist.	-3497 Nov 29 j 02:58	8° $\mathcal{B}$ 18'56	39.33150 AU
	-3504 Oct 28 j 00:58	30° $\mathcal{R}\Upsilon$		direct	-3496 Feb 16 j 08:12	7° $\mathcal{B}$ 14'18	
opposition	-3504 Nov 17 j 04:38	29° $\Upsilon$ 35'09	-2°-22'-48	max. Earth dist.	-3496 May 26 j 23:04	8° $\mathcal{B}$ 56'30	41.21115 AU
min. Earth dist.	-3504 Nov 19 j 11:47	29° $\Upsilon$ 32'15	40.96794 AU				
direct	-3503 Feb 07 j 00:33	28° $\Upsilon$ 29'21		conjunction	-3496 May 29 j 21:09	9° $\mathcal{B}$ 01'14	0°33'46
	-3503 May 13 j 15:42	0° $\mathcal{B}$		minimum elong	-3496 May 29 j 21:08	9° $\mathcal{B}$ 01'14	0°33'51
max. Earth dist.	-3503 May 18 j 07:50	0° $\mathcal{B}$ 07'13	42.85594 AU	retrograde	-3496 Sep 08 j 10:54	10° $\mathcal{B}$ 47'19	
				opposition	-3496 Nov 27 j 00:48	9° $\mathcal{B}$ 40'45	0°47'49
conjunction	-3503 May 20 j 21:54	0° $\mathcal{B}$ 11'14	-2°-5'-14	min. Earth dist.	-3496 Nov 29 j 15:27	9° $\mathcal{B}$ 37'19	39.08940 AU
minimum elong	-3503 May 20 j 21:58	0° $\mathcal{B}$ 11'14	2°05'11	direct	-3495 Feb 16 j 23:06	8° $\mathcal{B}$ 32'21	
retrograde	-3503 Aug 30 j 14:20	1° $\mathcal{B}$ 52'52		max. Earth dist.	-3495 May 28 j 11:56	10° $\mathcal{B}$ 15'13	40.96853 AU
opposition	-3503 Nov 18 j 15:02	0° $\mathcal{B}$ 48'15	-2°00'-1				
min. Earth dist.	-3503 Nov 20 j 22:34	0° $\mathcal{B}$ 45'19	40.74416 AU	conjunction	-3495 May 31 j 11:51	10° $\mathcal{B}$ 20'06	0°57'33
	-3503 Dec 31 j 04:32	30° $\mathcal{R}\Upsilon$		minimum elong	-3495 May 31 j 11:49	10° $\mathcal{B}$ 20'06	0°57'38
direct	-3502 Feb 08 j 11:06	29° $\Upsilon$ 42'11		retrograde	-3495 Sep 10 j 02:17	12° $\mathcal{B}$ 06'56	
	-3502 Mar 19 j 13:39	0° $\mathcal{B}$		opposition	-3495 Nov 28 j 13:55	11° $\mathcal{B}$ 00'05	1°12'58
max. Earth dist.	-3502 May 19 j 18:07	1° $\mathcal{B}$ 20'34	42.63058 AU	min. Earth dist.	-3495 Dec 01 j 05:40	10° $\mathcal{B}$ 56'34	38.84676 AU
				direct	-3494 Feb 18 j 12:01	9° $\mathcal{B}$ 51'21	
conjunction	-3502 May 22 j 10:35	1° $\mathcal{B}$ 24'45	-1°-43'-21	max. Earth dist.	-3494 May 30 j 03:32	11° $\mathcal{B}$ 35'04	40.72518 AU
minimum elong	-3502 May 22 j 10:38	1° $\mathcal{B}$ 24'45	1°43'18				
retrograde	-3502 Sep 01 j 04:41	3° $\mathcal{B}$ 06'58		conjunction	-3494 Jun 02 j 03:15	11° $\mathcal{B}$ 39'58	1°21'36
opposition	-3502 Nov 20 j 01:45	2° $\mathcal{B}$ 02'07	-1°-36'-57	minimum elong	-3494 Jun 02 j 03:12	11° $\mathcal{B}$ 39'58	1°21'40



Attention, astronomical year style is used: The year -3494 in astronomical counting style is the year 3495 BCE in historical counting style.

retrograde	-3494 Sep 11 j 15:17	13° <del>8</del> 27'35		retrograde	-3486 Sep 23 j 12:41	24° <del>8</del> 56'00	
opposition	-3494 Nov 30 j 03:21	12° <del>8</del> 20'28	1°38'24	opposition	-3486 Dec 11 j 08:08	23° <del>8</del> 46'20	5°10'57
min. Earth dist.	-3494 Dec 02 j 19:47	12° <del>8</del> 16'54	38.60330 AU	min. Earth dist.	-3486 Dec 14 j 07:02	23° <del>8</del> 42'14	36.59267 AU
direct	-3493 Feb 20 j 02:04	11° <del>8</del> 11'25		direct	-3485 Mar 03 j 01:07	22° <del>8</del> 34'14	
max. Earth dist.	-3493 May 31 j 17:59	12° <del>8</del> 55'54	40.48093 AU	max. Earth dist.	-3485 Jun 12 j 09:24	24° <del>8</del> 25'56	38.45627 AU
conjunction	-3493 Jun 03 j 19:00	13° <del>8</del> 00'56	1°45'53	conjunction	-3485 Jun 15 j 18:06	24° <del>8</del> 31'51	5°08'03
minimum elong	-3493 Jun 03 j 18:57	13° <del>8</del> 00'56	1°45'58	minimum elong	-3485 Jun 15 j 17:55	24° <del>8</del> 31'51	5°08'09
retrograde	-3493 Sep 13 j 07:45	14° <del>8</del> 49'22		retrograde	-3485 Sep 25 j 09:39	26° <del>8</del> 27'36	
opposition	-3493 Dec 01 j 17:13	13° <del>8</del> 41'59	2°04'06	opposition	-3485 Dec 13 j 02:06	25° <del>8</del> 17'33	5°38'28
min. Earth dist.	-3493 Dec 04 j 10:03	13° <del>8</del> 38'23	38.35883 AU	min. Earth dist.	-3485 Dec 16 j 02:29	25° <del>8</del> 13'20	36.33605 AU
direct	-3492 Feb 21 j 13:54	12° <del>8</del> 32'36		direct	-3484 Mar 03 j 16:23	24° <del>8</del> 05'01	
max. Earth dist.	-3492 Jun 01 j 09:12	14° <del>8</del> 17'56	40.23501 AU	max. Earth dist.	-3484 Jun 13 j 06:01	25° <del>8</del> 57'49	38.19844 AU
conjunction	-3492 Jun 04 j 11:14	14° <del>8</del> 23'04	2°10'24	conjunction	-3484 Jun 16 j 14:05	26° <del>8</del> 03'45	5°34'05
minimum elong	-3492 Jun 04 j 11:10	14° <del>8</del> 23'04	2°10'29	minimum elong	-3484 Jun 16 j 13:54	26° <del>8</del> 03'44	5°34'11
	-3492 Jun 26 j 23:58	15° <del>8</del>		retrograde	-3484 Sep 26 j 06:05	28° <del>8</del> 00'30	
retrograde	-3492 Sep 14 j 01:08	16° <del>8</del> 12'22		opposition	-3484 Dec 13 j 20:32	26° <del>8</del> 50'04	6°06'07
opposition	-3492 Dec 02 j 07:43	15° <del>8</del> 04'42	2°30'04	min. Earth dist.	-3484 Dec 16 j 20:14	26° <del>8</del> 45'52	36.08019 AU
min. Earth dist.	-3492 Dec 05 j 02:22	15° <del>8</del> 00'58	38.11258 AU	direct	-3483 Mar 05 j 12:29	25° <del>8</del> 37'07	
	-3492 Dec 05 j 19:45	15° <del>8</del>		max. Earth dist.	-3483 Jun 15 j 01:09	27° <del>8</del> 30'55	37.94153 AU
direct	-3491 Feb 22 j 01:36	13° <del>8</del> 54'59		conjunction	-3483 Jun 18 j 10:37	27° <del>8</del> 37'01	6°00'14
	-3491 May 08 j 15:53	15° <del>8</del>		minimum elong	-3483 Jun 18 j 10:24	27° <del>8</del> 37'00	6°00'21
max. Earth dist.	-3491 Jun 03 j 01:25	15° <del>8</del> 41'12	39.98716 AU	retrograde	-3483 Sep 28 j 04:39	29° <del>8</del> 34'49	
conjunction	-3491 Jun 06 j 03:56	15° <del>8</del> 46'25	2°35'10	opposition	-3483 Dec 15 j 15:30	28° <del>8</del> 24'01	6°33'54
minimum elong	-3491 Jun 06 j 03:51	15° <del>8</del> 46'25	2°35'16	min. Earth dist.	-3483 Dec 18 j 15:59	28° <del>8</del> 19'45	35.82569 AU
retrograde	-3491 Sep 15 j 18:56	17° <del>8</del> 36'35		direct	-3482 Mar 07 j 07:38	27° <del>8</del> 10'38	
opposition	-3491 Dec 03 j 22:32	16° <del>8</del> 28'38	2°56'18	max. Earth dist.	-3482 Jun 16 j 23:14	29° <del>8</del> 05'39	37.68586 AU
min. Earth dist.	-3491 Dec 06 j 17:09	16° <del>8</del> 24'53	37.86424 AU	conjunction	-3482 Jun 20 j 07:52	29° <del>8</del> 11'44	6°26'28
direct	-3490 Feb 23 j 16:30	15° <del>8</del> 18'34		minimum elong	-3482 Jun 20 j 07:39	29° <del>8</del> 11'43	6°26'34
max. Earth dist.	-3490 Jun 04 j 16:24	17° <del>8</del> 05'35	39.73683 AU		-3482 Jul 17 j 15:42	0° <del>II</del>	
conjunction	-3490 Jun 07 j 21:02	17° <del>8</del> 10'59	3°00'09	retrograde	-3482 Sep 30 j 01:15	1° <del>II</del> 10'38	
minimum elong	-3490 Jun 07 j 20:56	17° <del>8</del> 10'59	3°00'15	opposition	-3482 Dec 17 j 11:13	29° <del>8</del> 59'29	7°01'46
retrograde	-3490 Sep 17 j 13:23	19° <del>8</del> 02'02			-3482 Dec 17 j 02:33	30° <del>8</del>	
opposition	-3490 Dec 05 j 13:57	17° <del>8</del> 53'46	3°22'47	min. Earth dist.	-3482 Dec 20 j 11:52	29° <del>8</del> 55'10	35.57240 AU
min. Earth dist.	-3490 Dec 08 j 10:27	17° <del>8</del> 49'54	37.61350 AU	direct	-3481 Mar 09 j 04:11	28° <del>8</del> 45'41	
direct	-3489 Feb 25 j 08:02	16° <del>8</del> 43'20			-3481 May 26 j 05:43	0° <del>II</del>	
max. Earth dist.	-3489 Jun 06 j 10:10	18° <del>8</del> 31'19	39.48400 AU	max. Earth dist.	-3481 Jun 18 j 20:02	0° <del>II</del> 41'48	37.43135 AU
conjunction	-3489 Jun 09 j 14:49	18° <del>8</del> 36'46	3°25'21	conjunction	-3481 Jun 22 j 05:39	0° <del>II</del> 48'02	6°52'45
minimum elong	-3489 Jun 09 j 14:43	18° <del>8</del> 36'45	3°25'28	minimum elong	-3481 Jun 22 j 05:24	0° <del>II</del> 48'01	6°52'52
retrograde	-3489 Sep 19 j 05:36	20° <del>8</del> 28'41		retrograde	-3481 Oct 01 j 23:15	2° <del>II</del> 48'03	
opposition	-3489 Dec 07 j 05:48	19° <del>8</del> 20'07	3°49'30	opposition	-3481 Dec 19 j 07:23	1° <del>II</del> 36'34	7°29'43
min. Earth dist.	-3489 Dec 10 j 02:49	19° <del>8</del> 16'11	37.36040 AU	min. Earth dist.	-3481 Dec 22 j 08:07	1° <del>II</del> 32'13	35.32030 AU
direct	-3488 Feb 27 j 02:17	18° <del>8</del> 09'17		direct	-3480 Mar 09 j 22:59	0° <del>II</del> 22'21	
max. Earth dist.	-3488 Jun 07 j 02:18	19° <del>8</del> 58'05	39.22901 AU	max. Earth dist.	-3480 Jun 19 j 18:26	2° <del>II</del> 19'40	37.17750 AU
conjunction	-3488 Jun 10 j 08:55	20° <del>8</del> 03'44	3°50'46	conjunction	-3480 Jun 23 j 04:14	2° <del>II</del> 25'58	7°19'05
minimum elong	-3488 Jun 10 j 08:48	20° <del>8</del> 03'43	3°50'51	minimum elong	-3480 Jun 23 j 03:59	2° <del>II</del> 25'57	7°19'11
retrograde	-3488 Sep 20 j 00:19	21° <del>8</del> 56'34		retrograde	-3480 Oct 02 j 20:46	4° <del>II</del> 27'10	
opposition	-3488 Dec 07 j 22:07	20° <del>8</del> 47'39	4°16'27	opposition	-3480 Dec 20 j 04:31	3° <del>II</del> 15'19	7°57'42
min. Earth dist.	-3488 Dec 10 j 19:59	20° <del>8</del> 43'39	37.10558 AU	min. Earth dist.	-3480 Dec 23 j 06:23	3° <del>II</del> 10'52	35.06878 AU
direct	-3487 Feb 27 j 17:39	19° <del>8</del> 36'25		direct	-3479 Mar 11 j 17:44	2° <del>II</del> 00'42	
max. Earth dist.	-3487 Jun 08 j 20:29	21° <del>8</del> 26'11	38.97224 AU	max. Earth dist.	-3479 Jun 21 j 17:19	3° <del>II</del> 59'14	36.92405 AU
conjunction	-3487 Jun 12 j 03:27	21° <del>8</del> 31'53	4°16'21	conjunction	-3479 Jun 25 j 03:12	4° <del>II</del> 05'36	7°45'25
minimum elong	-3487 Jun 12 j 03:18	21° <del>8</del> 31'53	4°16'28	minimum elong	-3479 Jun 25 j 02:56	4° <del>II</del> 05'35	7°45'32
retrograde	-3487 Sep 21 j 16:33	23° <del>8</del> 25'41		retrograde	-3479 Oct 04 j 21:11	6° <del>II</del> 07'59	
opposition	-3487 Dec 09 j 15:01	22° <del>8</del> 16'23	4°43'36	opposition	-3479 Dec 22 j 02:10	4° <del>II</del> 55'46	8°25'43
min. Earth dist.	-3487 Dec 12 j 14:05	22° <del>8</del> 12'17	36.84937 AU	min. Earth dist.	-3479 Dec 25 j 03:35	4° <del>II</del> 51'20	34.81751 AU
direct	-3486 Mar 01 j 09:38	21° <del>8</del> 04'44		direct	-3478 Mar 13 j 13:27	3° <del>II</del> 40'42	
max. Earth dist.	-3486 Jun 10 j 14:55	22° <del>8</del> 55'27	38.71450 AU	max. Earth dist.	-3478 Jun 23 j 15:57	5° <del>II</del> 40'26	36.67040 AU
conjunction	-3486 Jun 13 j 22:28	23° <del>8</del> 01'15	4°42'07	conjunction	-3478 Jun 27 j 03:07	5° <del>II</del> 46'57	8°11'45
minimum elong	-3486 Jun 13 j 22:19	23° <del>8</del> 01'15	4°42'13	minimum elong	-3478 Jun 27 j 02:50	5° <del>II</del> 46'55	8°11'52



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 27

Attention, astronomical year style is used: The year -3478 in astronomical counting style is the year 3479 BCE in historical counting style.

retrograde	-3478 Oct 06 j 22:31	7°II50'33		direct	-3469 Mar 29 j 18:45	19°II59'04	
opposition	-3478 Dec 24 j 00:33	6°II37'56	8°53'44	max. Earth dist.	-3469 Jul 10 j 22:23	22°II11'07	34.44137 AU
min. Earth dist.	-3478 Dec 27 j 03:35	6°II33'22	34.56619 AU				
direct	-3477 Mar 15 j 09:46	5°II22'25		conjunction	-3469 Jul 14 j 08:24	22°II18'09	12°01'36
max. Earth dist.	-3477 Jun 25 j 17:05	7°II23'27	36.41666 AU	minimum elong	-3469 Jul 14 j 08:00	22°II18'07	12°01'43
				retrograde	-3469 Oct 24 j 12:53	24°II33'33	
conjunction	-3477 Jun 29 j 03:46	7°II30'00	8°38'02	opposition	-3468 Jan 09 j 20:17	23°II17'09	12°58'14
minimum elong	-3477 Jun 29 j 03:28	7°II29'59	8°38'09	min. Earth dist.	-3468 Jan 12 j 22:15	23°II12'23	32.37369 AU
retrograde	-3477 Oct 09 j 00:25	9°II34'49		direct	-3468 Mar 30 j 21:58	21°II57'23	
opposition	-3477 Dec 25 j 23:45	8°II21'48	9°21'43	max. Earth dist.	-3468 Jul 12 j 07:08	24°II11'04	34.21028 AU
min. Earth dist.	-3477 Dec 29 j 02:29	8°II17'14	34.31483 AU				
direct	-3476 Mar 16 j 10:28	7°II05'50		conjunction	-3468 Jul 15 j 15:20	24°II18'01	12°25'22
max. Earth dist.	-3476 Jun 26 j 16:38	9°II08'02	36.16294 AU	minimum elong	-3468 Jul 15 j 14:57	24°II17'59	12°25'30
				retrograde	-3468 Oct 25 j 21:00	26°II34'51	
conjunction	-3476 Jun 30 j 04:51	9°II14'46	9°04'15	opposition	-3467 Jan 11 j 02:43	25°II18'05	13°23'29
minimum elong	-3476 Jun 30 j 04:33	9°II14'45	9°04'22	min. Earth dist.	-3467 Jan 14 j 04:01	25°II13'20	32.14776 AU
retrograde	-3476 Oct 10 j 03:59	11°II20'49		direct	-3467 Apr 02 j 04:43	23°II57'54	
opposition	-3476 Dec 26 j 23:37	10°II07'23	9°49'37	max. Earth dist.	-3467 Jul 14 j 14:35	26°II13'03	33.98322 AU
min. Earth dist.	-3476 Dec 30 j 03:08	10°II02'44	34.06393 AU				
direct	-3475 Mar 18 j 09:53	8°II50'55		conjunction	-3467 Jul 17 j 23:02	26°II20'06	12°48'35
max. Earth dist.	-3475 Jun 28 j 19:18	10°II54'30	35.90973 AU	minimum elong	-3467 Jul 17 j 22:37	26°II20'03	12°48'42
				retrograde	-3467 Oct 28 j 07:56	28°II38'22	
conjunction	-3475 Jul 02 j 06:48	11°II01'15	9°30'21	opposition	-3466 Jan 13 j 09:49	27°II21'12	13°48'07
minimum elong	-3475 Jul 02 j 06:28	11°II01'13	9°30'28	min. Earth dist.	-3466 Jan 16 j 10:25	27°II16'28	31.92584 AU
retrograde	-3475 Oct 12 j 04:48	13°II08'33		direct	-3466 Apr 04 j 10:56	26°II00'36	
opposition	-3475 Dec 29 j 00:10	11°II54'41	10°17'24	max. Earth dist.	-3466 Jul 17 j 00:35	28°II17'21	33.75983 AU
min. Earth dist.	-3474 Jan 01 j 03:56	11°II49'59	33.81389 AU				
direct	-3474 Mar 20 j 10:44	10°II37'44		conjunction	-3466 Jul 20 j 07:47	28°II24'22	13°11'10
max. Earth dist.	-3474 Jun 30 j 21:04	12°II42'34	35.65776 AU	minimum elong	-3466 Jul 20 j 07:23	28°II24'19	13°11'19
					-3466 Sep 07 j 15:47	0°☾	
conjunction	-3474 Jul 04 j 09:15	12°II49'27	9°56'18	retrograde	-3466 Oct 30 j 16:33	0°☾44'04	
minimum elong	-3474 Jul 04 j 08:55	12°II49'25	9°56'25		-3466 Dec 24 j 18:23	30°R II	
retrograde	-3474 Oct 14 j 07:48	14°II58'01		opposition	-3465 Jan 15 j 18:09	29°II26'31	14°12'05
opposition	-3474 Dec 31 j 01:27	13°II43'43	10°45'00	min. Earth dist.	-3465 Jan 18 j 18:58	29°II21'45	31.70747 AU
min. Earth dist.	-3473 Jan 03 j 04:55	13°II39'00	33.56554 AU	direct	-3465 Apr 06 j 17:35	28°II05'29	
direct	-3473 Mar 22 j 10:59	12°II26'16			-3465 Jul 08 j 05:59	0°☾	
max. Earth dist.	-3473 Jul 03 j 00:41	14°II32'30	35.40754 AU	max. Earth dist.	-3465 Jul 19 j 10:28	0°☾23'44	33.54020 AU
conjunction	-3473 Jul 06 j 12:31	14°II39'24	10°22'01	conjunction	-3465 Jul 22 j 17:10	0°☾30'47	13°33'06
minimum elong	-3473 Jul 06 j 12:09	14°II39'22	10°22'09	minimum elong	-3465 Jul 22 j 16:45	0°☾30'44	13°33'13
retrograde	-3473 Oct 16 j 10:16	16°II49'17		retrograde	-3465 Nov 02 j 02:40	2°☾51'55	
opposition	-3472 Jan 02 j 03:38	15°II34'32	11°12'23	opposition	-3464 Jan 18 j 03:15	1°☾33'58	14°35'19
min. Earth dist.	-3472 Jan 05 j 07:47	15°II29'45	33.31952 AU	min. Earth dist.	-3464 Jan 21 j 02:39	1°☾29'15	31.49290 AU
direct	-3472 Mar 23 j 10:42	14°II16'36		direct	-3464 Apr 08 j 01:37	0°☾12'29	
max. Earth dist.	-3472 Jul 04 j 05:10	16°II24'14	35.16021 AU	max. Earth dist.	-3464 Jul 20 j 21:23	2°☾32'15	33.32439 AU
conjunction	-3472 Jul 07 j 16:21	16°II31'10	10°47'29	conjunction	-3464 Jul 24 j 03:29	2°☾39'18	13°54'16
minimum elong	-3472 Jul 07 j 15:59	16°II31'08	10°47'36	minimum elong	-3464 Jul 24 j 03:06	2°☾39'16	13°54'24
retrograde	-3472 Oct 17 j 15:10	18°II42'22		retrograde	-3464 Nov 03 j 13:11	5°☾01'51	
opposition	-3471 Jan 03 j 06:33	17°II27'12	11°39'27	opposition	-3463 Jan 19 j 13:25	3°☾43'29	14°57'44
min. Earth dist.	-3471 Jan 06 j 09:16	17°II22'28	33.07686 AU	min. Earth dist.	-3463 Jan 22 j 13:08	3°☾38'43	31.28240 AU
direct	-3471 Mar 25 j 12:01	16°II08'46		direct	-3463 Apr 10 j 08:20	2°☾21'33	
max. Earth dist.	-3471 Jul 06 j 09:33	18°II17'48	34.91636 AU	max. Earth dist.	-3463 Jul 23 j 09:49	4°☾42'52	33.11304 AU
conjunction	-3471 Jul 09 j 20:50	18°II24'48	11°12'36	conjunction	-3463 Jul 26 j 14:23	4°☾49'51	14°14'37
minimum elong	-3471 Jul 09 j 20:27	18°II24'46	11°12'43	minimum elong	-3463 Jul 26 j 13:59	4°☾49'48	14°14'44
retrograde	-3471 Oct 19 j 21:08	20°II37'24		retrograde	-3463 Nov 06 j 01:09	7°☾13'47	
opposition	-3470 Jan 05 j 10:21	19°II21'47	12°06'10	opposition	-3462 Jan 22 j 00:17	5°☾55'00	15°19'15
min. Earth dist.	-3470 Jan 08 j 13:34	19°II17'00	32.83813 AU	min. Earth dist.	-3462 Jan 24 j 22:07	5°☾50'20	31.07642 AU
direct	-3470 Mar 27 j 13:52	18°II02'54		direct	-3462 Apr 12 j 18:16	4°☾32'36	
max. Earth dist.	-3470 Jul 08 j 16:38	20°II13'30	34.67671 AU	max. Earth dist.	-3462 Jul 25 j 21:53	6°☾55'21	32.90651 AU
conjunction	-3470 Jul 12 j 02:15	20°II20'26	11°37'19	conjunction	-3462 Jul 29 j 02:10	7°☾02'22	14°34'03
minimum elong	-3470 Jul 12 j 01:52	20°II20'24	11°37'27	minimum elong	-3462 Jul 29 j 01:47	7°☾02'20	14°34'11
retrograde	-3470 Oct 22 j 04:31	22°II34'25		retrograde	-3462 Nov 08 j 13:58	9°☾27'40	
opposition	-3469 Jan 07 j 14:48	21°II18'24	12°32'27	opposition	-3461 Jan 24 j 12:03	8°☾08'27	15°39'46
min. Earth dist.	-3469 Jan 10 j 16:44	21°II13'40	32.60367 AU	min. Earth dist.	-3461 Jan 27 j 09:49	8°☾03'46	30.87569 AU



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 28

Attention, astronomical year style is used: The year -3461 in astronomical counting style is the year 3462 BCE in historical counting style.

direct	-3461 Apr 15 j 04:19	6° $\overline{45}$ '36		conjunction	-3453 Aug 19 j 18:27	28° $\overline{19}$ '40	16°33'34
max. Earth dist.	-3461 Jul 28 j 12:57	9° $\overline{09}$ '57	32.70576 AU	minimum elong	-3453 Aug 19 j 18:15	28° $\overline{19}$ '38	16°33'41
					-3453 Oct 04 j 12:55	0° $\overline{0}$	
conjunction	-3461 Jul 31 j 14:41	9° $\overline{16}$ '48	14°52'30	retrograde	-3453 Nov 30 j 20:34	0° $\overline{0}$ 56'04	
minimum elong	-3461 Jul 31 j 14:18	9° $\overline{16}$ '45	14°52'38		-3452 Jan 30 j 16:14	30° $\overline{R}$ $\overline{19}$	
retrograde	-3461 Nov 11 j 03:28	11° $\overline{43}$ '27		opposition	-3452 Feb 15 j 13:09	29° $\overline{33}$ '55	17°43'23
opposition	-3460 Jan 27 j 00:48	10° $\overline{23}$ '48	15°59'11	min. Earth dist.	-3452 Feb 17 j 18:04	29° $\overline{30}$ '14	29.41413 AU
min. Earth dist.	-3460 Jan 29 j 20:38	10° $\overline{19}$ '13	30.68097 AU	direct	-3452 May 05 j 18:07	28° $\overline{08}$ '19	
direct	-3460 Apr 16 j 17:27	9° $\overline{00}$ '31			-3452 Jul 30 j 23:32	0° $\overline{0}$	
max. Earth dist.	-3460 Jul 30 j 02:35	11° $\overline{26}$ '15	32.51161 AU	max. Earth dist.	-3452 Aug 19 j 07:08	0° $\overline{0}$ 45'11	31.26265 AU
conjunction	-3460 Aug 02 j 03:36	11° $\overline{33}$ '05	15°09'52	conjunction	-3452 Aug 21 j 12:40	0° $\overline{0}$ 50'30	16°39'18
minimum elong	-3460 Aug 02 j 03:15	11° $\overline{33}$ '03	15°10'00	minimum elong	-3452 Aug 21 j 12:32	0° $\overline{0}$ 50'30	16°39'24
retrograde	-3460 Nov 12 j 18:42	14° $\overline{01}$ '05		retrograde	-3452 Dec 02 j 16:03	3° $\overline{0}$ 27'52	
opposition	-3459 Jan 28 j 14:22	12° $\overline{41}$ '00	16°17'23	opposition	-3451 Feb 17 j 09:15	2° $\overline{0}$ 05'30	17°48'52
min. Earth dist.	-3459 Jan 31 j 08:59	12° $\overline{36}$ '29	30.49336 AU	min. Earth dist.	-3451 Feb 19 j 11:09	2° $\overline{0}$ 02'01	29.29341 AU
direct	-3459 Apr 19 j 05:00	11° $\overline{17}$ '18		direct	-3451 May 08 j 13:20	0° $\overline{0}$ 39'42	
max. Earth dist.	-3459 Aug 01 j 19:29	13° $\overline{44}$ '39	32.32505 AU	max. Earth dist.	-3451 Aug 22 j 03:32	3° $\overline{0}$ 17'33	31.14542 AU
conjunction	-3459 Aug 04 j 17:29	13° $\overline{51}$ '15	15°26'02	conjunction	-3451 Aug 24 j 07:26	3° $\overline{0}$ 22'45	16°43'18
minimum elong	-3459 Aug 04 j 17:07	13° $\overline{51}$ '13	15°26'09	minimum elong	-3451 Aug 24 j 07:18	3° $\overline{0}$ 22'44	16°43'24
retrograde	-3459 Nov 15 j 09:40	16° $\overline{20}$ '32		retrograde	-3451 Dec 05 j 12:22	6° $\overline{0}$ 00'59	
opposition	-3458 Jan 31 j 04:44	15° $\overline{00}$ '05	16°34'18	opposition	-3450 Feb 20 j 05:48	4° $\overline{0}$ 38'23	17°52'29
min. Earth dist.	-3458 Feb 02 j 21:34	14° $\overline{55}$ '39	30.31350 AU	min. Earth dist.	-3450 Feb 22 j 06:00	4° $\overline{0}$ 35'00	29.18128 AU
direct	-3458 Apr 21 j 19:38	13° $\overline{36}$ '00		direct	-3450 May 11 j 07:19	3° $\overline{0}$ 12'25	
max. Earth dist.	-3458 Aug 04 j 11:07	16° $\overline{04}$ '44	32.14691 AU	max. Earth dist.	-3450 Aug 25 j 02:34	5° $\overline{0}$ 51'21	31.03726 AU
conjunction	-3458 Aug 07 j 07:56	16° $\overline{11}$ '17	15°40'56	conjunction	-3450 Aug 27 j 02:43	5° $\overline{0}$ 56'11	16°45'31
minimum elong	-3458 Aug 07 j 07:37	16° $\overline{11}$ '15	15°41'03	minimum elong	-3450 Aug 27 j 02:39	5° $\overline{0}$ 56'11	16°45'37
retrograde	-3458 Nov 18 j 03:28	18° $\overline{41}$ '51		retrograde	-3450 Dec 08 j 08:11	8° $\overline{0}$ 35'11	
opposition	-3457 Feb 02 j 19:58	17° $\overline{21}$ '02	16°49'47	opposition	-3449 Feb 23 j 03:06	7° $\overline{0}$ 12'22	17°54'08
min. Earth dist.	-3457 Feb 05 j 10:28	17° $\overline{16}$ '45	30.14217 AU	min. Earth dist.	-3449 Feb 25 j 00:29	7° $\overline{0}$ 09'11	29.07793 AU
direct	-3457 Apr 24 j 10:11	15° $\overline{56}$ '37		direct	-3449 May 14 j 05:21	5° $\overline{0}$ 46'15	
max. Earth dist.	-3457 Aug 07 j 05:24	18° $\overline{26}$ '54	31.97753 AU	max. Earth dist.	-3449 Aug 27 j 23:42	8° $\overline{0}$ 25'57	30.93857 AU
conjunction	-3457 Aug 09 j 23:09	18° $\overline{33}$ '12	15°54'27	conjunction	-3449 Aug 29 j 22:01	8° $\overline{0}$ 30'37	16°45'54
minimum elong	-3457 Aug 09 j 22:50	18° $\overline{33}$ '11	15°54'35	minimum elong	-3449 Aug 29 j 21:58	8° $\overline{0}$ 30'37	16°46'01
retrograde	-3457 Nov 20 j 19:02	21° $\overline{05}$ '02		retrograde	-3449 Dec 11 j 05:45	11° $\overline{0}$ 10'18	
opposition	-3456 Feb 05 j 12:16	19° $\overline{43}$ '55	17°03'47	opposition	-3448 Feb 26 j 00:50	9° $\overline{0}$ 47'16	17°53'47
min. Earth dist.	-3456 Feb 08 j 01:24	19° $\overline{39}$ '42	29.97949 AU	min. Earth dist.	-3448 Feb 27 j 19:24	9° $\overline{0}$ 44'16	28.98421 AU
direct	-3456 Apr 26 j 00:55	18° $\overline{19}$ '12		direct	-3448 May 16 j 01:53	8° $\overline{0}$ 21'00	
max. Earth dist.	-3456 Aug 08 j 23:13	20° $\overline{50}$ '53	31.81725 AU	max. Earth dist.	-3448 Aug 29 j 23:43	11° $\overline{0}$ 01'37	30.85011 AU
conjunction	-3456 Aug 11 j 14:57	20° $\overline{57}$ '03	16°06'33	conjunction	-3448 Aug 31 j 17:46	11° $\overline{0}$ 05'52	16°44'24
minimum elong	-3456 Aug 11 j 14:42	20° $\overline{57}$ '02	16°06'40	minimum elong	-3448 Aug 31 j 17:47	11° $\overline{0}$ 05'52	16°44'30
retrograde	-3456 Nov 22 j 13:26	23° $\overline{30}$ '06		retrograde	-3448 Dec 13 j 01:46	13° $\overline{0}$ 46'06	
opposition	-3455 Feb 07 j 05:10	22° $\overline{08}$ '42	17°16'12	opposition	-3447 Feb 27 j 22:58	12° $\overline{0}$ 22'53	17°51'23
min. Earth dist.	-3455 Feb 09 j 15:24	22° $\overline{04}$ '41	29.82565 AU	min. Earth dist.	-3447 Mar 01 j 14:52	12° $\overline{0}$ 20'05	28.90066 AU
direct	-3455 Apr 28 j 16:43	20° $\overline{43}$ '44		direct	-3447 May 18 j 23:21	10° $\overline{0}$ 56'31	
max. Earth dist.	-3455 Aug 11 j 18:14	23° $\overline{16}$ '50	31.66574 AU	max. Earth dist.	-3447 Sep 01 j 21:46	13° $\overline{0}$ 37'44	30.77266 AU
conjunction	-3455 Aug 14 j 07:29	23° $\overline{22}$ '48	16°17'08	conjunction	-3447 Sep 03 j 13:27	13° $\overline{0}$ 41'45	16°40'58
minimum elong	-3455 Aug 14 j 07:13	23° $\overline{22}$ '47	16°17'15	minimum elong	-3447 Sep 03 j 13:29	13° $\overline{0}$ 41'46	16°41'05
retrograde	-3455 Nov 25 j 07:23	25° $\overline{57}$ '02			-3447 Oct 07 j 00:44	15° $\overline{0}$	
opposition	-3454 Feb 09 j 23:04	24° $\overline{35}$ '23	17°26'59	retrograde	-3447 Dec 16 j 00:44	16° $\overline{0}$ 22'28	
min. Earth dist.	-3454 Feb 12 j 08:19	24° $\overline{31}$ '24	29.68022 AU	opposition	-3446 Mar 02 j 21:22	14° $\overline{0}$ 59'04	17°46'53
direct	-3454 May 01 j 07:33	23° $\overline{10}$ '10			-3446 Mar 02 j 08:13	15° $\overline{R}$ $\overline{0}$	
max. Earth dist.	-3454 Aug 14 j 13:56	25° $\overline{44}$ '36	31.52291 AU	min. Earth dist.	-3446 Mar 04 j 09:30	14° $\overline{0}$ 56'32	28.82819 AU
				direct	-3446 May 21 j 22:19	13° $\overline{0}$ 32'38	
conjunction	-3454 Aug 17 j 00:38	25° $\overline{50}$ '22	16°26'09		-3446 Aug 04 j 00:23	15° $\overline{0}$	
minimum elong	-3454 Aug 17 j 00:26	25° $\overline{50}$ '21	16°26'16	max. Earth dist.	-3446 Sep 04 j 22:15	16° $\overline{0}$ 14'34	30.70680 AU
retrograde	-3454 Nov 28 j 02:04	28° $\overline{25}$ '43					
opposition	-3453 Feb 12 j 17:36	27° $\overline{03}$ '49	17°36'04	conjunction	-3446 Sep 06 j 09:27	16° $\overline{0}$ 18'09	16°35'35
min. Earth dist.	-3453 Feb 14 j 23:45	27° $\overline{00}$ '03	29.54305 AU	minimum elong	-3446 Sep 06 j 09:33	16° $\overline{0}$ 18'09	16°35'40
direct	-3453 May 04 j 01:16	25° $\overline{38}$ '24		retrograde	-3446 Dec 18 j 20:37	18° $\overline{0}$ 59'14	
max. Earth dist.	-3453 Aug 17 j 09:37	28° $\overline{14}$ '02	31.38847 AU	opposition	-3445 Mar 05 j 20:13	17° $\overline{0}$ 35'43	17°40'14
				min. Earth dist.	-3445 Mar 07 j 05:46	17° $\overline{0}$ 33'21	28.76723 AU



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 29

Attention, astronomical year style is used: The year -3445 in astronomical counting style is the year 3446 BCE in historical counting style.

direct	-3445 May 24 j 20:39	16°♏09'15		direct	-3437 Jun 15 j 08:43	7°♐04'31	
max. Earth dist.	-3445 Sep 07 j 21:13	18°♏51'39	30.65324 AU				
conjunction	-3445 Sep 09 j 05:26	18°♏54'56	16°28'13	conjunction	-3437 Sep 29 j 18:34	9°♐47'24	14°21'26
minimum elong	-3445 Sep 09 j 05:33	18°♏54'56	16°28'18	minimum elong	-3437 Sep 29 j 18:57	9°♐47'27	14°21'30
retrograde	-3445 Dec 21 j 19:17	21°♏36'17		max. Earth dist.	-3437 Sep 29 j 14:56	9°♐47'02	30.63878 AU
opposition	-3444 Mar 07 j 19:12	20°♏12'42	17°31'27	retrograde	-3436 Jan 11 j 13:49	12°♐27'26	
min. Earth dist.	-3444 Mar 09 j 00:15	20°♏10'40	28.71832 AU	opposition	-3436 Mar 29 j 12:09	11°♐04'12	15°08'36
direct	-3444 May 26 j 19:24	18°♏46'17		min. Earth dist.	-3436 Mar 29 j 15:18	11°♐03'58	28.72519 AU
max. Earth dist.	-3444 Sep 09 j 21:27	21°♏29'09	30.61192 AU	direct	-3436 Jun 17 j 07:23	9°♐39'04	
conjunction	-3444 Sep 11 j 01:27	21°♏32'00	16°18'52	conjunction	-3436 Oct 01 j 12:40	12°♐21'05	13°57'56
minimum elong	-3444 Sep 11 j 01:38	21°♏32'01	16°18'56	minimum elong	-3436 Oct 01 j 13:03	12°♐21'08	13°57'58
retrograde	-3444 Dec 23 j 16:35	24°♏13'34		max. Earth dist.	-3436 Oct 01 j 11:26	12°♐20'58	30.68449 AU
opposition	-3443 Mar 10 j 18:27	22°♏49'56	17°20'32	retrograde	-3435 Jan 13 j 09:28	15°♐00'31	
min. Earth dist.	-3443 Mar 11 j 21:01	22°♏48'04	28.68128 AU	opposition	-3435 Apr 01 j 10:09	13°♐37'21	14°42'37
direct	-3443 May 29 j 17:38	21°♏23'36		min. Earth dist.	-3435 Apr 01 j 09:19	13°♐37'24	28.77253 AU
conjunction	-3443 Sep 13 j 21:28	24°♏09'16	16°07'33	direct	-3435 Jun 20 j 05:22	12°♐12'27	
minimum elong	-3443 Sep 13 j 21:40	24°♏09'17	16°07'38	conjunction	-3435 Oct 04 j 06:27	14°♐53'32	13°32'58
max. Earth dist.	-3443 Sep 12 j 20:50	24°♏06'45	30.58279 AU	minimum elong	-3435 Oct 04 j 06:52	14°♐53'35	13°33'00
retrograde	-3443 Dec 26 j 14:34	26°♏50'54		max. Earth dist.	-3435 Oct 04 j 09:48	14°♐53'53	30.74086 AU
opposition	-3442 Mar 13 j 17:31	25°♏27'18	17°07'31	retrograde	-3434 Jan 16 j 02:25	17°♐32'16	
min. Earth dist.	-3442 Mar 14 j 15:42	25°♏25'44	28.65579 AU	opposition	-3434 Apr 04 j 07:40	16°♐09'13	14°15'05
direct	-3442 Jun 01 j 17:12	24°♏01'04		min. Earth dist.	-3434 Apr 04 j 04:10	16°♐09'27	28.83060 AU
conjunction	-3442 Sep 16 j 17:31	26°♏46'34	15°54'20	direct	-3434 Jun 23 j 03:25	14°♐44'34	
minimum elong	-3442 Sep 16 j 17:46	26°♏46'36	15°54'24	conjunction	-3434 Oct 06 j 23:31	17°♐24'39	13°06'35
max. Earth dist.	-3442 Sep 15 j 20:23	26°♏44'25	30.56522 AU	minimum elong	-3434 Oct 06 j 23:56	17°♐24'41	13°06'36
retrograde	-3442 Dec 29 j 10:46	29°♏28'12		max. Earth dist.	-3434 Oct 07 j 05:35	17°♐25'15	30.80845 AU
opposition	-3441 Mar 16 j 17:01	28°♏04'37	16°52'27	retrograde	-3433 Jan 18 j 21:11	20°♐02'37	
min. Earth dist.	-3441 Mar 17 j 12:49	28°♏03'14	28.64149 AU	opposition	-3433 Apr 07 j 04:41	18°♐39'42	13°46'04
direct	-3441 Jun 04 j 14:44	26°♏38'33		min. Earth dist.	-3433 Apr 06 j 20:27	18°♐40'16	28.90005 AU
conjunction	-3441 Sep 19 j 13:20	29°♏23'45	15°39'15	direct	-3433 Jun 26 j 00:12	17°♐15'21	
minimum elong	-3441 Sep 19 j 13:36	29°♏23'46	15°39'20	conjunction	-3433 Oct 09 j 16:02	19°♐54'22	12°38'54
max. Earth dist.	-3441 Sep 18 j 20:04	29°♏21'59	30.55895 AU	minimum elong	-3433 Oct 09 j 16:27	19°♐54'24	12°38'55
retrograde	-3441 Oct 04 j 11:19	0°♐		max. Earth dist.	-3433 Oct 10 j 02:33	19°♐55'24	30.88749 AU
opposition	-3440 Jan 01 j 08:07	2°♐05'16		retrograde	-3432 Jan 21 j 14:08	22°♐31'31	
min. Earth dist.	-3440 Mar 18 j 16:25	0°♐41'44	16°35'24	opposition	-3432 Apr 09 j 01:19	21°♐08'47	13°15'41
direct	-3440 Mar 19 j 08:08	0°♐40'38	28.63786 AU	min. Earth dist.	-3432 Apr 08 j 14:25	21°♐09'32	28.98101 AU
conjunction	-3440 Apr 13 j 13:44	30°♐♏		direct	-3432 Jun 27 j 21:37	19°♐44'45	
minimum elong	-3440 Jun 06 j 14:23	29°♏15'49		conjunction	-3432 Oct 11 j 07:59	22°♐22'39	12°09'58
max. Earth dist.	-3440 Jul 27 j 21:47	0°♐		minimum elong	-3432 Oct 11 j 08:23	22°♐22'41	12°09'59
conjunction	-3440 Sep 21 j 09:03	2°♐00'37	15°22'22	max. Earth dist.	-3432 Oct 11 j 21:30	22°♐23'59	30.97820 AU
minimum elong	-3440 Sep 21 j 09:21	2°♐00'39	15°22'25	retrograde	-3431 Jan 23 j 08:10	24°♐58'55	
max. Earth dist.	-3440 Sep 20 j 18:40	1°♐59'09	30.56338 AU	opposition	-3431 Apr 11 j 20:59	23°♐36'25	12°44'01
retrograde	-3439 Jan 03 j 04:30	4°♐41'56		min. Earth dist.	-3431 Apr 11 j 05:28	23°♐37'28	29.07341 AU
opposition	-3439 Mar 21 j 15:39	3°♐18'27	16°16'25	direct	-3431 Jun 30 j 18:44	22°♐12'44	
min. Earth dist.	-3439 Mar 22 j 04:41	3°♐17'32	28.64470 AU	conjunction	-3431 Oct 13 j 23:21	24°♐49'30	11°39'55
direct	-3439 Jun 09 j 11:28	1°♐52'43		minimum elong	-3431 Oct 13 j 23:46	24°♐49'32	11°39'56
conjunction	-3439 Sep 24 j 04:37	4°♐36'59	15°03'43	max. Earth dist.	-3431 Oct 14 j 16:36	24°♐51'11	31.08003 AU
minimum elong	-3439 Sep 24 j 04:57	4°♐37'01	15°03'47	retrograde	-3430 Jan 25 j 23:14	27°♐24'52	
max. Earth dist.	-3439 Sep 23 j 18:17	4°♐35'56	30.57835 AU	opposition	-3430 Apr 14 j 16:20	26°♐02'37	12°11'13
retrograde	-3438 Jan 05 j 23:30	7°♐17'58		min. Earth dist.	-3430 Apr 13 j 22:21	26°♐03'50	29.17679 AU
opposition	-3438 Mar 24 j 14:44	5°♐54'33	15°55'34	direct	-3430 Jul 03 j 13:13	24°♐39'19	
min. Earth dist.	-3438 Mar 25 j 00:13	5°♐53'54	28.66148 AU	conjunction	-3430 Oct 16 j 14:00	27°♐14'52	11°08'51
direct	-3438 Jun 12 j 11:35	4°♐29'01		minimum elong	-3430 Oct 16 j 14:24	27°♐14'54	11°08'51
conjunction	-3438 Sep 26 j 23:42	7°♐12'39	14°43'23	max. Earth dist.	-3430 Oct 17 j 10:42	27°♐16'53	31.19259 AU
minimum elong	-3438 Sep 27 j 00:03	7°♐12'41	14°43'26	retrograde	-3429 Jan 28 j 14:43	29°♐49'17	
max. Earth dist.	-3438 Sep 26 j 15:43	7°♐11'50	30.60343 AU	opposition	-3429 Apr 17 j 10:58	28°♐27'18	11°37'22
retrograde	-3437 Jan 08 j 19:40	9°♐53'12		min. Earth dist.	-3429 Apr 16 j 12:54	28°♐28'47	29.29043 AU
opposition	-3437 Mar 27 j 13:36	8°♐29'52	15°32'56	direct	-3429 Jul 06 j 09:35	27°♐04'25	
min. Earth dist.	-3437 Mar 27 j 19:45	8°♐29'26	28.68832 AU	conjunction	-3429 Oct 19 j 04:04	29°♐38'43	10°36'53



## Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 30

Attention, astronomical year style is used: The year -3429 in astronomical counting style is the year 3430 BCE in historical counting style.

minimum elong	-3429 Oct 19 j 04:28	29° $\mathbb{M}$ 38'46	10°36'54	minimum elong	-3421 Nov 05 j 20:09	17° $\mathbb{A}$ 45'46	6°00'52
max. Earth dist.	-3429 Oct 20 j 03:36	29° $\mathbb{M}$ 41'00	31.31494 AU	max. Earth dist.	-3421 Nov 07 j 16:52	17° $\mathbb{A}$ 49'51	32.57909 AU
	-3429 Oct 28 j 07:50	0° $\mathbb{A}$		retrograde	-3420 Feb 17 j 20:17	20° $\mathbb{A}$ 09'57	
retrograde	-3428 Jan 31 j 06:01	2° $\mathbb{A}$ 12'08		min. Earth dist.	-3420 May 06 j 03:22	18° $\mathbb{A}$ 53'26	30.68367 AU
min. Earth dist.	-3428 Apr 18 j 04:15	0° $\mathbb{A}$ 52'06	29.41382 AU	opposition	-3420 May 08 j 02:08	18° $\mathbb{A}$ 50'25	6°05'18
opposition	-3428 Apr 19 j 05:00	0° $\mathbb{A}$ 50'26	11°02'38	direct	-3420 Jul 27 j 03:41	17° $\mathbb{A}$ 31'03	
	-3428 May 22 j 20:41	30° $\mathbb{R}$ $\mathbb{M}$					
direct	-3428 Jul 08 j 02:45	29° $\mathbb{M}$ 27'58		conjunction	-3420 Nov 07 j 03:28	19° $\mathbb{A}$ 52'54	5°25'11
	-3428 Aug 21 j 08:33	0° $\mathbb{A}$		minimum elong	-3420 Nov 07 j 03:41	19° $\mathbb{A}$ 52'55	5°25'08
				max. Earth dist.	-3420 Nov 09 j 02:50	19° $\mathbb{A}$ 57'12	32.77049 AU
conjunction	-3428 Oct 20 j 17:32	2° $\mathbb{A}$ 00'59	10°04'07	retrograde	-3419 Feb 19 j 04:40	22° $\mathbb{A}$ 15'55	
minimum elong	-3428 Oct 20 j 17:55	2° $\mathbb{A}$ 01'01	10°04'07	min. Earth dist.	-3419 May 08 j 12:11	20° $\mathbb{A}$ 59'51	30.87685 AU
max. Earth dist.	-3428 Oct 21 j 20:38	2° $\mathbb{A}$ 03'36	31.44653 AU	opposition	-3419 May 10 j 13:14	20° $\mathbb{A}$ 56'43	5°27'07
retrograde	-3427 Feb 01 j 17:59	4° $\mathbb{A}$ 33'22		direct	-3419 Jul 29 j 14:45	19° $\mathbb{A}$ 37'46	
opposition	-3427 Apr 21 j 22:17	3° $\mathbb{A}$ 11'57	10°27'06				
min. Earth dist.	-3427 Apr 20 j 18:29	3° $\mathbb{A}$ 13'49	29.54592 AU	conjunction	-3419 Nov 09 j 10:25	21° $\mathbb{A}$ 58'14	4°49'27
direct	-3427 Jul 10 j 21:29	1° $\mathbb{A}$ 49'53		minimum elong	-3419 Nov 09 j 10:37	21° $\mathbb{A}$ 58'16	4°49'25
				max. Earth dist.	-3419 Nov 11 j 12:48	22° $\mathbb{A}$ 02'47	32.96946 AU
conjunction	-3427 Oct 23 j 06:17	4° $\mathbb{A}$ 21'35	9°30'40	retrograde	-3418 Feb 21 j 09:49	24° $\mathbb{A}$ 20'05	
minimum elong	-3427 Oct 23 j 06:40	4° $\mathbb{A}$ 21'37	9°30'40	min. Earth dist.	-3418 May 10 j 19:49	23° $\mathbb{A}$ 04'31	31.07739 AU
max. Earth dist.	-3427 Oct 24 j 11:14	4° $\mathbb{A}$ 24'22	31.58634 AU	opposition	-3418 May 12 j 23:26	23° $\mathbb{A}$ 01'14	4°48'58
retrograde	-3426 Feb 04 j 06:46	6° $\mathbb{A}$ 52'53		direct	-3418 Aug 01 j 02:42	21° $\mathbb{A}$ 42'43	
min. Earth dist.	-3426 Apr 23 j 08:03	5° $\mathbb{A}$ 33'48	29.68626 AU				
opposition	-3426 Apr 24 j 14:49	5° $\mathbb{A}$ 31'45	9°50'54	conjunction	-3418 Nov 11 j 16:34	24° $\mathbb{A}$ 01'51	4°13'47
direct	-3426 Jul 13 j 12:54	4° $\mathbb{A}$ 10'06		minimum elong	-3418 Nov 11 j 16:45	24° $\mathbb{A}$ 01'52	4°13'44
				max. Earth dist.	-3418 Nov 13 j 20:27	24° $\mathbb{A}$ 06'29	33.17538 AU
conjunction	-3426 Oct 25 j 18:32	6° $\mathbb{A}$ 40'26	8°56'39	retrograde	-3417 Feb 23 j 16:14	26° $\mathbb{A}$ 22'33	
minimum elong	-3426 Oct 25 j 18:53	6° $\mathbb{A}$ 40'28	8°56'37	min. Earth dist.	-3417 May 13 j 02:41	25° $\mathbb{A}$ 07'29	31.28500 AU
max. Earth dist.	-3426 Oct 27 j 03:07	6° $\mathbb{A}$ 43'32	31.73393 AU	opposition	-3417 May 15 j 09:03	25° $\mathbb{A}$ 04'03	4°10'57
retrograde	-3425 Feb 06 j 17:38	9° $\mathbb{A}$ 10'37		direct	-3417 Aug 03 j 11:39	23° $\mathbb{A}$ 46'00	
min. Earth dist.	-3425 Apr 25 j 21:55	7° $\mathbb{A}$ 51'56	29.83410 AU				
opposition	-3425 Apr 27 j 06:48	7° $\mathbb{A}$ 49'46	9°14'09	conjunction	-3417 Nov 13 j 22:10	26° $\mathbb{A}$ 03'48	3°38'14
direct	-3425 Jul 16 j 05:10	6° $\mathbb{A}$ 28'30		minimum elong	-3417 Nov 13 j 22:20	26° $\mathbb{A}$ 03'49	3°38'11
				max. Earth dist.	-3417 Nov 16 j 05:18	26° $\mathbb{A}$ 08'41	33.38764 AU
conjunction	-3425 Oct 28 j 05:50	8° $\mathbb{A}$ 57'26	8°22'08	retrograde	-3416 Feb 25 j 20:32	28° $\mathbb{A}$ 23'22	
minimum elong	-3425 Oct 28 j 06:10	8° $\mathbb{A}$ 57'28	8°22'07	min. Earth dist.	-3416 May 14 j 10:14	27° $\mathbb{A}$ 08'45	31.49863 AU
max. Earth dist.	-3425 Oct 29 j 15:58	9° $\mathbb{A}$ 00'40	31.88874 AU	opposition	-3416 May 16 j 17:55	27° $\mathbb{A}$ 05'14	3°33'07
retrograde	-3424 Feb 09 j 05:48	11° $\mathbb{A}$ 26'28		direct	-3416 Aug 04 j 21:01	25° $\mathbb{A}$ 47'40	
min. Earth dist.	-3424 Apr 27 j 09:35	10° $\mathbb{A}$ 08'16	29.98926 AU				
opposition	-3424 Apr 28 j 21:56	10° $\mathbb{A}$ 05'53	8°36'56	conjunction	-3416 Nov 15 j 03:07	28° $\mathbb{A}$ 04'09	3°02'52
direct	-3424 Jul 17 j 20:05	8° $\mathbb{A}$ 44'59		minimum elong	-3416 Nov 15 j 03:14	28° $\mathbb{A}$ 04'09	3°02'48
				max. Earth dist.	-3416 Nov 17 j 11:10	28° $\mathbb{A}$ 09'04	33.60532 AU
conjunction	-3424 Oct 29 j 16:38	11° $\mathbb{A}$ 12'31	7°47'13		-3415 Jan 19 j 09:39	0° $\mathbb{M}$	
minimum elong	-3424 Oct 29 j 16:56	11° $\mathbb{A}$ 12'33	7°47'12	retrograde	-3415 Feb 27 j 02:32	0° $\mathbb{M}$ 22'36	
max. Earth dist.	-3424 Oct 31 j 06:14	11° $\mathbb{A}$ 16'02	32.05049 AU		-3415 Apr 08 j 06:05	30° $\mathbb{R}$ $\mathbb{A}$	
retrograde	-3423 Feb 10 j 15:29	13° $\mathbb{A}$ 40'21		min. Earth dist.	-3415 May 16 j 15:16	29° $\mathbb{A}$ 08'30	31.71756 AU
min. Earth dist.	-3423 Apr 29 j 12:15	12° $\mathbb{A}$ 22'30	30.15151 AU	opposition	-3415 May 19 j 01:49	29° $\mathbb{A}$ 04'50	2°55'33
opposition	-3423 May 01 j 12:09	12° $\mathbb{A}$ 20'01	7°59'22	direct	-3415 Aug 07 j 04:06	27° $\mathbb{A}$ 47'42	
direct	-3423 Jul 20 j 10:51	10° $\mathbb{A}$ 59'30			-3415 Nov 15 j 22:03	0° $\mathbb{M}$	
conjunction	-3423 Nov 01 j 02:30	13° $\mathbb{A}$ 25'36	7°11'59	conjunction	-3415 Nov 17 j 07:33	0° $\mathbb{M}$ 02'55	2°27'45
minimum elong	-3423 Nov 01 j 02:48	13° $\mathbb{A}$ 25'37	7°11'58	minimum elong	-3415 Nov 17 j 07:39	0° $\mathbb{M}$ 02'56	2°27'42
max. Earth dist.	-3423 Nov 02 j 17:47	13° $\mathbb{A}$ 29'15	32.21931 AU	max. Earth dist.	-3415 Nov 19 j 18:17	0° $\mathbb{M}$ 08'02	33.82752 AU
retrograde	-3422 Feb 13 j 02:20	15° $\mathbb{A}$ 52'13		retrograde	-3414 Mar 01 j 07:07	2° $\mathbb{M}$ 20'16	
min. Earth dist.	-3422 May 02 j 08:00	14° $\mathbb{A}$ 34'51	30.32111 AU	min. Earth dist.	-3414 May 18 j 22:07	1° $\mathbb{M}$ 06'32	31.94086 AU
opposition	-3422 May 04 j 01:34	14° $\mathbb{A}$ 32'09	7°21'31	opposition	-3414 May 21 j 09:19	1° $\mathbb{M}$ 02'52	2°18'18
direct	-3422 Jul 23 j 00:21	13° $\mathbb{A}$ 12'00			-3414 Jul 09 j 15:21	30° $\mathbb{R}$ $\mathbb{A}$	
				direct	-3414 Aug 09 j 10:57	29° $\mathbb{A}$ 46'11	
conjunction	-3422 Nov 03 j 11:30	15° $\mathbb{A}$ 36'40	6°36'31		-3414 Sep 08 j 12:28	0° $\mathbb{M}$	
minimum elong	-3422 Nov 03 j 11:46	15° $\mathbb{A}$ 36'41	6°36'29				
max. Earth dist.	-3422 Nov 05 j 05:59	15° $\mathbb{A}$ 40'34	32.39532 AU	conjunction	-3414 Nov 19 j 11:14	2° $\mathbb{M}$ 00'07	1°52'56
retrograde	-3421 Feb 15 j 11:11	18° $\mathbb{A}$ 02'05		minimum elong	-3414 Nov 19 j 11:18	2° $\mathbb{M}$ 00'07	1°52'52
min. Earth dist.	-3421 May 04 j 19:05	16° $\mathbb{A}$ 45'04	30.49843 AU	max. Earth dist.	-3414 Nov 21 j 22:51	2° $\mathbb{M}$ 05'16	34.05356 AU
opposition	-3421 May 06 j 14:24	16° $\mathbb{A}$ 42'16	6°43'28	retrograde	-3413 Mar 03 j 12:35	4° $\mathbb{M}$ 16'21	
direct	-3421 Jul 25 j 13:37	15° $\mathbb{A}$ 22'30		min. Earth dist.	-3413 May 21 j 02:16	3° $\mathbb{M}$ 03'07	32.16777 AU
				opposition	-3413 May 23 j 16:00	2° $\mathbb{M}$ 59'18	1°41'25
conjunction	-3421 Nov 05 j 19:54	17° $\mathbb{A}$ 45'44	6°00'54	direct	-3413 Aug 11 j 16:51	1° $\mathbb{M}$ 43'02	



# Planetary Phenomena of Pluto from -3900 through -3400 (UT), Astrodienst AG 7-Dez-2017 14:38, page 31

Attention, astronomical year style is used: The year -3413 in astronomical counting style is the year 3414 BCE in historical counting style.

conjunction	-3413 Nov 21 j 14:26	3°M55'44	1°18'27	retrograde	-3405 Mar 17 j 18:39	18°M46'56	
minimum elong	-3413 Nov 21 j 14:29	3°M55'44	1°18'24	min. Earth dist.	-3405 Jun 04 j 20:10	17°M36'39	34.09357 AU
max. Earth dist.	-3413 Nov 24 j 03:43	4°M00'58	34.28257 AU	opposition	-3405 Jun 07 j 20:20	17°M32'23	-2°-55'-50
retrograde	-3412 Mar 04 j 16:01	6°M10'51		direct	-3405 Aug 27 j 01:11	16°M19'08	
min. Earth dist.	-3412 May 22 j 07:41	4°M57'57	32.39779 AU				
opposition	-3412 May 24 j 22:01	4°M54'08	1°04'57	conjunction	-3405 Dec 05 j 17:31	18°M22'22	-3°-1'-6
direct	-3412 Aug 12 j 22:55	3°M38'16		minimum elong	-3405 Dec 05 j 17:24	18°M22'22	3°01'11
				max. Earth dist.	-3405 Dec 08 j 17:57	18°M28'12	36.21827 AU
conjunction	-3412 Nov 22 j 17:05	5°M49'42	0°44'21	retrograde	-3404 Mar 18 j 18:08	20°M29'03	
minimum elong	-3412 Nov 22 j 17:07	5°M49'42	0°44'17	min. Earth dist.	-3404 Jun 05 j 19:16	19°M19'10	34.34811 AU
max. Earth dist.	-3412 Nov 25 j 07:51	5°M55'02	34.51433 AU	opposition	-3404 Jun 08 j 20:50	19°M14'51	-3°-27'-50
retrograde	-3411 Mar 06 j 18:26	8°M03'42		direct	-3404 Aug 28 j 02:09	18°M01'58	
min. Earth dist.	-3411 May 24 j 11:08	6°M51'13	32.63040 AU				
opposition	-3411 May 27 j 03:11	6°M47'18	0°28'56	conjunction	-3404 Dec 06 j 15:24	20°M04'11	-3°-31'-7
direct	-3411 Aug 15 j 06:54	5°M31'49		minimum elong	-3404 Dec 06 j 15:17	20°M04'10	3°31'14
				max. Earth dist.	-3404 Dec 09 j 16:19	20°M10'00	36.47266 AU
conjunction	-3411 Nov 24 j 18:49	7°M42'01	0°10'41	retrograde	-3403 Mar 20 j 16:48	22°M09'55	
minimum elong	-3411 Nov 24 j 18:49	7°M42'01	0°10'37	min. Earth dist.	-3403 Jun 07 j 18:28	21°M00'25	34.60440 AU
behind sun begin	-3411 Nov 24 j 13:51	7°M41'37		opposition	-3403 Jun 10 j 20:59	20°M56'03	-3°-59'-12
behind sun end	-3411 Nov 24 j 23:48	7°M42'25		direct	-3403 Aug 30 j 01:40	19°M43'34	
max. Earth dist.	-3411 Nov 27 j 10:21	7°M47'22	34.74845 AU				
retrograde	-3410 Mar 08 j 20:56	9°M54'53		conjunction	-3403 Dec 08 j 12:54	21°M44'46	-4°00'-33
desc. node	-3410 Mar 21 j 19:16	9°M52'28		minimum elong	-3403 Dec 08 j 12:46	21°M44'45	4°00'39
min. Earth dist.	-3410 May 26 j 14:11	8°M42'47	32.86589 AU	max. Earth dist.	-3403 Dec 11 j 15:35	21°M50'41	36.72820 AU
opposition	-3410 May 29 j 07:45	8°M38'48	0°-6'-35	retrograde	-3402 Mar 22 j 11:57	23°M49'35	
direct	-3410 Aug 17 j 12:02	7°M23'41		min. Earth dist.	-3402 Jun 09 j 17:51	22°M40'24	34.86143 AU
				opposition	-3402 Jun 12 j 20:33	22°M36'03	-4°-29'-54
conjunction	-3410 Nov 26 j 20:08	9°M32'38	0°-22'-36	direct	-3402 Sep 01 j 03:51	21°M23'56	
minimum elong	-3410 Nov 26 j 20:08	9°M32'38	0°22'42				
max. Earth dist.	-3410 Nov 29 j 13:59	9°M38'09	34.98542 AU	conjunction	-3402 Dec 10 j 09:57	23°M24'09	-4°-29'-23
retrograde	-3409 Mar 10 j 19:26	11°M44'25		minimum elong	-3402 Dec 10 j 09:48	23°M24'08	4°29'30
min. Earth dist.	-3409 May 28 j 17:08	10°M32'39	33.10447 AU	max. Earth dist.	-3402 Dec 13 j 12:10	23°M29'59	36.98408 AU
opposition	-3409 May 31 j 11:36	10°M28'37	0°-41'-35	retrograde	-3401 Mar 24 j 09:14	25°M28'03	
direct	-3409 Aug 19 j 17:50	9°M13'52		min. Earth dist.	-3401 Jun 11 j 15:32	24°M19'16	35.11870 AU
				opposition	-3401 Jun 14 j 19:36	24°M14'51	-4°-59'-56
conjunction	-3409 Nov 28 j 20:37	11°M21'36	0°-55'-21	direct	-3401 Sep 03 j 02:56	23°M03'06	
minimum elong	-3409 Nov 28 j 20:35	11°M21'36	0°55'27				
max. Earth dist.	-3409 Dec 01 j 14:55	11°M27'06	35.22549 AU	conjunction	-3401 Dec 12 j 06:40	25°M02'20	-4°-57'-36
retrograde	-3408 Mar 11 j 19:12	13°M32'18		minimum elong	-3401 Dec 12 j 06:31	25°M02'19	4°57'43
min. Earth dist.	-3408 May 29 j 17:56	12°M20'57	33.34660 AU	max. Earth dist.	-3401 Dec 15 j 10:18	25°M08'14	37.23960 AU
opposition	-3408 Jun 01 j 14:43	12°M16'48	-1°-16'-2	retrograde	-3400 Mar 25 j 04:51	27°M05'22	
direct	-3408 Aug 20 j 21:08	11°M02'25		min. Earth dist.	-3400 Jun 12 j 14:52	25°M56'48	35.37535 AU
				opposition	-3400 Jun 15 j 18:12	25°M52'27	-5°-29'-19
conjunction	-3408 Nov 29 j 20:44	13°M08'59	-1°-27'-36	direct	-3400 Sep 04 j 02:06	24°M41'03	
minimum elong	-3408 Nov 29 j 20:41	13°M08'58	1°27'43				
max. Earth dist.	-3408 Dec 02 j 17:31	13°M14'39	35.46890 AU	conjunction	-3400 Dec 13 j 02:58	26°M39'19	-5°-25'-13
	-3407 Feb 05 j 13:11	15°M		minimum elong	-3400 Dec 13 j 02:48	26°M39'18	5°25'21
retrograde	-3407 Mar 13 j 17:54	15°M18'38		max. Earth dist.	-3400 Dec 16 j 06:14	26°M45'09	37.49427 AU
	-3407 Apr 20 j 04:18	15°RM					
min. Earth dist.	-3407 May 31 j 19:55	14°M07'35	33.59225 AU				
opposition	-3407 Jun 03 j 17:07	14°M03'26	-1°-49'-55				
direct	-3407 Aug 22 j 23:35	12°M49'25					
conjunction	-3407 Dec 01 j 20:12	14°M54'50	-1°-59'-20				
minimum elong	-3407 Dec 01 j 20:08	14°M54'50	1°59'25				
	-3407 Dec 04 j 11:24	15°M					
max. Earth dist.	-3407 Dec 04 j 17:38	15°M00'31	35.71577 AU				
retrograde	-3406 Mar 15 j 18:16	17°M03'28					
min. Earth dist.	-3406 Jun 02 j 19:13	15°M52'52	33.84136 AU				
opposition	-3406 Jun 05 j 18:56	15°M48'36	-2°-23'-11				
	-3406 Jul 12 j 20:31	15°RM					
direct	-3406 Aug 25 j 00:45	14°M34'58					
	-3406 Oct 05 j 16:20	15°M					
conjunction	-3406 Dec 03 j 18:59	16°M39'16	-2°-30'-30				
minimum elong	-3406 Dec 03 j 18:54	16°M39'16	2°30'36				
max. Earth dist.	-3406 Dec 06 j 18:10	16°M45'02	35.96567 AU				



# Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 1

Attention, astronomical year style is used: The year -3400 in astronomical counting style is the year 3401 BCE in historical counting style.

retrograde	-3400 Mar 25 j 04:51	27°M05'22		conjunction	-3393 Dec 24 j 11:35	7°Z25'00	-8°-21'-4
min. Earth dist.	-3400 Jun 12 j 14:52	25°M56'48	35.37535 AU	minimum elong	-3393 Dec 24 j 11:23	7°Z24'59	8°21'12
opposition	-3400 Jun 15 j 18:12	25°M52'27	-5°-29'-19	max. Earth dist.	-3393 Dec 27 j 18:43	7°Z30'51	39.26666 AU
direct	-3400 Sep 04 j 02:06	24°M41'03		retrograde	-3392 Apr 06 j 09:44	9°Z21'26	
				min. Earth dist.	-3392 Jun 25 j 03:42	8°Z15'09	37.41660 AU
conjunction	-3400 Dec 13 j 02:58	26°M39'19	-5°-25'-13	opposition	-3392 Jun 28 j 11:18	8°Z10'43	-8°-59'-58
minimum elong	-3400 Dec 13 j 02:48	26°M39'18	5°25'21	direct	-3392 Sep 16 j 20:30	7°Z01'44	
max. Earth dist.	-3400 Dec 16 j 06:14	26°M45'09	37.49427 AU				
retrograde	-3399 Mar 27 j 01:45	28°M41'27		conjunction	-3392 Dec 25 j 04:20	8°Z53'07	-8°-43'-40
min. Earth dist.	-3399 Jun 14 j 11:23	27°M33'14	35.63105 AU	minimum elong	-3392 Dec 25 j 04:07	8°Z53'07	8°43'48
opposition	-3399 Jun 17 j 16:00	27°M28'50	-5°-58'-2	max. Earth dist.	-3392 Dec 28 j 11:40	8°Z58'57	39.51998 AU
direct	-3399 Sep 05 j 23:32	26°M17'44		retrograde	-3391 Apr 08 j 05:28	10°Z48'50	
				min. Earth dist.	-3391 Jun 26 j 21:59	9°Z42'48	37.67174 AU
conjunction	-3399 Dec 14 j 22:41	28°M15'04	-5°-52'-14	opposition	-3391 Jun 30 j 05:21	9°Z38'25	-9°-23'-14
minimum elong	-3399 Dec 14 j 22:31	28°M15'03	5°52'20	direct	-3391 Sep 18 j 11:38	8°Z29'44	
max. Earth dist.	-3399 Dec 18 j 02:33	28°M20'54	37.74785 AU				
	-3398 Feb 21 j 20:25	0°Z		conjunction	-3391 Dec 26 j 20:55	10°Z20'23	-9°-5'-39
retrograde	-3398 Mar 28 j 23:23	0°Z16'19		minimum elong	-3391 Dec 26 j 20:43	10°Z20'23	9°05'47
	-3398 May 03 j 20:20	30°RM		max. Earth dist.	-3391 Dec 30 j 05:04	10°Z26'14	39.77250 AU
min. Earth dist.	-3398 Jun 16 j 09:15	29°M08'20	35.88600 AU	retrograde	-3390 Apr 09 j 20:41	12°Z15'23	
opposition	-3398 Jun 19 j 13:34	29°M03'58	-6°-26'-4	min. Earth dist.	-3390 Jun 28 j 15:47	11°Z09'38	37.92557 AU
direct	-3398 Sep 07 j 19:31	27°M53'11		opposition	-3390 Jul 01 j 23:03	11°Z05'16	-9°-45'-51
				direct	-3390 Sep 20 j 06:56	9°Z56'53	
conjunction	-3398 Dec 16 j 17:55	29°M49'35	-6°-18'-37				
minimum elong	-3398 Dec 16 j 17:44	29°M49'34	6°18'44	conjunction	-3390 Dec 28 j 12:59	11°Z46'48	-9°-27'-1
max. Earth dist.	-3398 Dec 19 j 22:32	29°M55'26	38.00080 AU	minimum elong	-3390 Dec 28 j 12:46	11°Z46'47	9°27'09
	-3398 Dec 22 j 10:27	0°Z		max. Earth dist.	-3390 Dec 31 j 20:10	11°Z52'33	40.02337 AU
retrograde	-3397 Mar 30 j 18:07	1°Z49'58		retrograde	-3389 Apr 11 j 12:32	13°Z41'07	
min. Earth dist.	-3397 Jun 18 j 05:30	0°Z42'15	36.14041 AU	min. Earth dist.	-3389 Jun 30 j 08:47	12°Z35'38	38.17761 AU
opposition	-3397 Jun 21 j 10:26	0°Z37'53	-6°-53'-26	opposition	-3389 Jul 03 j 16:26	12°Z31'15	-10°-7'-49
	-3397 Jul 20 j 15:44	30°RM		direct	-3389 Sep 22 j 01:04	11°Z23'09	
direct	-3397 Sep 09 j 17:19	29°M27'22					
	-3397 Oct 28 j 20:10	0°Z		conjunction	-3389 Dec 30 j 05:03	13°Z12'22	-9°-47'-48
conjunction	-3397 Dec 18 j 12:39	1°Z22'52	-6°-44'-22	minimum elong	-3389 Dec 30 j 04:51	13°Z12'21	9°47'56
minimum elong	-3397 Dec 18 j 12:28	1°Z22'51	6°44'29	max. Earth dist.	-3388 Jan 02 j 13:08	13°Z18'09	40.27196 AU
max. Earth dist.	-3397 Dec 21 j 17:07	1°Z28'40	38.25335 AU	retrograde	-3388 Apr 12 j 02:07	15°Z05'59	
retrograde	-3396 Mar 31 j 12:44	3°Z22'24		min. Earth dist.	-3388 Jul 01 j 02:57	14°Z00'40	38.42703 AU
min. Earth dist.	-3396 Jun 19 j 01:04	2°Z14'58	36.39498 AU	opposition	-3388 Jul 04 j 09:17	13°Z56'23	-10°-29'-10
opposition	-3396 Jun 22 j 06:42	2°Z10'34	-7°-20'-7	direct	-3388 Sep 22 j 20:21	12°Z48'33	
direct	-3396 Sep 10 j 14:03	1°Z00'22					
				conjunction	-3388 Dec 30 j 20:43	14°Z37'03	-10°-8'00
conjunction	-3396 Dec 19 j 07:04	2°Z54'59	-7°-9'-30	minimum elong	-3388 Dec 30 j 20:30	14°Z37'02	10°08'07
minimum elong	-3396 Dec 19 j 06:52	2°Z54'58	7°09'38	max. Earth dist.	-3387 Jan 03 j 03:37	14°Z42'42	40.51784 AU
max. Earth dist.	-3396 Dec 22 j 13:10	3°Z00'52	38.50611 AU	retrograde	-3387 Apr 13 j 17:18	16°Z29'58	
retrograde	-3395 Apr 02 j 03:59	4°Z53'42		min. Earth dist.	-3387 Jul 02 j 18:43	15°Z24'55	38.67356 AU
min. Earth dist.	-3395 Jun 20 j 21:02	3°Z46'31	36.64981 AU	opposition	-3387 Jul 06 j 01:48	15°Z20'37	-10°-49'-53
opposition	-3395 Jun 24 j 02:32	3°Z42'08	-7°-46'-7	direct	-3387 Sep 24 j 13:18	14°Z13'01	
direct	-3395 Sep 12 j 12:53	2°Z32'13					
				conjunction	-3386 Jan 01 j 11:51	16°Z00'48	-10°-27'-38
conjunction	-3395 Dec 21 j 00:51	4°Z25'59	-7°-34'00	minimum elong	-3386 Jan 01 j 11:39	16°Z00'47	10°27'46
minimum elong	-3395 Dec 21 j 00:40	4°Z25'58	7°34'07	max. Earth dist.	-3386 Jan 04 j 18:53	16°Z06'26	40.76068 AU
max. Earth dist.	-3395 Dec 24 j 06:31	4°Z31'48	38.75928 AU	retrograde	-3386 Apr 15 j 09:03	17°Z53'03	
retrograde	-3394 Apr 03 j 21:51	6°Z23'55		min. Earth dist.	-3386 Jul 04 j 12:13	16°Z48'08	38.91726 AU
min. Earth dist.	-3394 Jun 22 j 14:47	5°Z17'05	36.90518 AU	opposition	-3386 Jul 07 j 18:06	16°Z43'54	-11°-10'00
opposition	-3394 Jun 25 j 21:54	5°Z12'38	-8°-11'-25	direct	-3386 Sep 26 j 05:10	15°Z36'31	
direct	-3394 Sep 14 j 08:18	4°Z03'01					
				conjunction	-3385 Jan 03 j 02:51	17°Z23'36	-10°-46'-41
conjunction	-3394 Dec 22 j 18:23	5°Z55'58	-7°-57'-51	minimum elong	-3385 Jan 03 j 02:38	17°Z23'35	10°46'48
minimum elong	-3394 Dec 22 j 18:11	5°Z55'57	7°57'58	max. Earth dist.	-3385 Jan 06 j 09:53	17°Z29'12	41.00098 AU
max. Earth dist.	-3394 Dec 26 j 01:25	6°Z01'51	39.01283 AU	retrograde	-3385 Apr 17 j 00:50	19°Z15'09	
retrograde	-3393 Apr 05 j 14:59	7°Z53'09		min. Earth dist.	-3385 Jul 06 j 03:41	18°Z10'26	39.15847 AU
min. Earth dist.	-3393 Jun 24 j 10:24	6°Z46'32	37.16094 AU	opposition	-3385 Jul 09 j 09:44	18°Z06'13	-11°-29'-30
opposition	-3393 Jun 27 j 16:52	6°Z42'08	-8°-36'-2	direct	-3385 Sep 27 j 20:13	16°Z59'03	
direct	-3393 Sep 16 j 03:18	5°Z32'51					
				conjunction	-3384 Jan 04 j 17:21	18°Z45'27	-11°-5'-9



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 2

Attention, astronomical year style is used: The year -3384 in astronomical counting style is the year 3385 BCE in historical counting style.

minimum elong	-3384 Jan 04 j 17:08	18° $\mathring{A}$ 45'26	11°05'18	retrograde	-3376 Apr 27 j 22:45	0° $\mathring{B}$ 59'11	
max. Earth dist.	-3384 Jan 07 j 23:40	18° $\mathring{A}$ 50'57	41.23902 AU		-3376 Jul 14 j 13:31	30° $\mathring{R}$ $\mathring{A}$	
retrograde	-3384 Apr 17 j 16:36	20° $\mathring{A}$ 36'20		min. Earth dist.	-3376 Jul 17 j 13:13	29° $\mathring{A}$ 56'15	41.25677 AU
min. Earth dist.	-3384 Jul 06 j 19:08	19° $\mathring{A}$ 31'47	39.39788 AU	opposition	-3376 Jul 20 j 16:03	29° $\mathring{A}$ 52'19	-13°-58'-3
opposition	-3384 Jul 10 j 01:09	19° $\mathring{A}$ 27'35	-11°-48'-23	direct	-3376 Oct 09 j 05:25	28° $\mathring{A}$ 47'17	
direct	-3384 Sep 28 j 10:23	18° $\mathring{A}$ 20'38			-3376 Dec 28 j 16:43	0° $\mathring{B}$	
conjunction	-3383 Jan 05 j 07:38	20° $\mathring{A}$ 06'22	-11°-23'-3	conjunction	-3375 Jan 15 j 16:09	0° $\mathring{B}$ 28'34	-13°-26'-12
minimum elong	-3383 Jan 05 j 07:26	20° $\mathring{A}$ 06'21	11°23'11	minimum elong	-3375 Jan 15 j 15:59	0° $\mathring{B}$ 28'34	13°26'20
max. Earth dist.	-3383 Jan 08 j 14:56	20° $\mathring{A}$ 11'54	41.47545 AU	max. Earth dist.	-3375 Jan 18 j 20:35	0° $\mathring{B}$ 33'43	43.30931 AU
retrograde	-3383 Apr 19 j 04:00	21° $\mathring{A}$ 56'36		retrograde	-3375 Apr 29 j 10:42	2° $\mathring{B}$ 14'26	
min. Earth dist.	-3383 Jul 08 j 10:38	20° $\mathring{A}$ 52'13	39.63576 AU	min. Earth dist.	-3375 Jul 19 j 01:35	1° $\mathring{B}$ 11'43	41.47625 AU
opposition	-3383 Jul 11 j 16:01	20° $\mathring{A}$ 48'03	-12°-6'-39	opposition	-3375 Jul 22 j 04:35	1° $\mathring{B}$ 07'47	-14°-11'-48
direct	-3383 Sep 30 j 03:52	19° $\mathring{A}$ 41'19		direct	-3375 Oct 10 j 18:45	0° $\mathring{B}$ 02'57	
conjunction	-3382 Jan 06 j 21:31	21° $\mathring{A}$ 26'25	-11°-40'-22	conjunction	-3374 Jan 17 j 04:14	1° $\mathring{B}$ 43'44	-13°-39'-18
minimum elong	-3382 Jan 06 j 21:19	21° $\mathring{A}$ 26'24	11°40'31	minimum elong	-3374 Jan 17 j 04:03	1° $\mathring{B}$ 43'43	13°39'26
max. Earth dist.	-3382 Jan 10 j 03:49	21° $\mathring{A}$ 31'52	41.71071 AU	max. Earth dist.	-3374 Jan 20 j 08:00	1° $\mathring{B}$ 48'48	43.52480 AU
retrograde	-3382 Apr 20 j 16:49	23° $\mathring{A}$ 16'02		retrograde	-3374 May 01 j 00:17	3° $\mathring{B}$ 29'05	
min. Earth dist.	-3382 Jul 10 j 00:21	22° $\mathring{A}$ 11'55	39.87265 AU	min. Earth dist.	-3374 Jul 20 j 15:37	2° $\mathring{B}$ 26'28	41.69167 AU
opposition	-3382 Jul 13 j 06:40	22° $\mathring{A}$ 07'43	-12°-24'-19	opposition	-3374 Jul 23 j 17:03	2° $\mathring{B}$ 22'38	-14°-25'-3
direct	-3382 Oct 01 j 19:31	21° $\mathring{A}$ 01'12		direct	-3374 Oct 12 j 05:51	1° $\mathring{B}$ 17'59	
conjunction	-3381 Jan 08 j 11:05	22° $\mathring{A}$ 45'42	-11°-57'-7	conjunction	-3373 Jan 18 j 16:06	2° $\mathring{B}$ 58'15	-13°-51'-55
minimum elong	-3381 Jan 08 j 10:53	22° $\mathring{A}$ 45'41	11°57'15	minimum elong	-3373 Jan 18 j 15:58	2° $\mathring{B}$ 58'14	13°52'04
max. Earth dist.	-3381 Jan 11 j 18:17	22° $\mathring{A}$ 51'11	41.94490 AU	max. Earth dist.	-3373 Jan 21 j 19:46	3° $\mathring{B}$ 03'16	43.73644 AU
retrograde	-3381 Apr 22 j 05:45	24° $\mathring{A}$ 34'44		retrograde	-3373 May 02 j 12:09	4° $\mathring{B}$ 43'04	
min. Earth dist.	-3381 Jul 11 j 15:50	23° $\mathring{A}$ 30'46	40.10841 AU	min. Earth dist.	-3373 Jul 22 j 04:05	3° $\mathring{B}$ 40'36	41.90317 AU
opposition	-3381 Jul 14 j 21:04	23° $\mathring{A}$ 26'38	-12°-41'-22	opposition	-3373 Jul 25 j 05:04	3° $\mathring{B}$ 36'48	-14°-37'-48
direct	-3381 Oct 03 j 10:39	22° $\mathring{A}$ 20'23		direct	-3373 Oct 13 j 18:07	2° $\mathring{B}$ 32'19	
conjunction	-3380 Jan 10 j 00:33	24° $\mathring{A}$ 04'17	-12°-13'-18	conjunction	-3372 Jan 20 j 03:40	4° $\mathring{B}$ 12'05	-14°-4'-4
minimum elong	-3380 Jan 10 j 00:21	24° $\mathring{A}$ 04'16	12°13'26	minimum elong	-3372 Jan 20 j 03:30	4° $\mathring{B}$ 12'04	14°04'12
max. Earth dist.	-3380 Jan 13 j 07:27	24° $\mathring{A}$ 09'43	42.17802 AU	max. Earth dist.	-3372 Jan 23 j 05:43	4° $\mathring{B}$ 16'58	43.94448 AU
retrograde	-3380 Apr 22 j 19:31	25° $\mathring{A}$ 52'44		retrograde	-3372 May 03 j 00:58	5° $\mathring{B}$ 56'22	
min. Earth dist.	-3380 Jul 12 j 04:57	24° $\mathring{A}$ 49'03	40.34279 AU	min. Earth dist.	-3372 Jul 22 j 16:06	4° $\mathring{B}$ 54'02	42.11151 AU
opposition	-3380 Jul 15 j 10:50	24° $\mathring{A}$ 44'54	-12°-57'-49	opposition	-3372 Jul 25 j 16:43	4° $\mathring{B}$ 50'16	-14°-50'-4
direct	-3380 Oct 04 j 00:06	23° $\mathring{A}$ 38'53		direct	-3372 Oct 14 j 04:19	3° $\mathring{B}$ 45'57	
conjunction	-3379 Jan 10 j 13:37	25° $\mathring{A}$ 22'14	-12°-28'-55	conjunction	-3371 Jan 20 j 15:04	5° $\mathring{B}$ 25'13	-14°-15'-44
minimum elong	-3379 Jan 10 j 13:25	25° $\mathring{A}$ 22'13	12°29'03	minimum elong	-3371 Jan 20 j 14:56	5° $\mathring{B}$ 25'13	14°15'53
max. Earth dist.	-3379 Jan 13 j 20:01	25° $\mathring{A}$ 27'36	42.40953 AU	max. Earth dist.	-3371 Jan 23 j 17:46	5° $\mathring{B}$ 30'08	44.14960 AU
retrograde	-3379 Apr 24 j 11:19	27° $\mathring{A}$ 10'09		retrograde	-3371 May 04 j 10:25	7° $\mathring{B}$ 09'01	
min. Earth dist.	-3379 Jul 13 j 19:23	26° $\mathring{A}$ 06'39	40.57550 AU	min. Earth dist.	-3371 Jul 24 j 04:55	6° $\mathring{B}$ 06'46	42.31707 AU
opposition	-3379 Jul 17 j 00:36	26° $\mathring{A}$ 02'34	-13°-13'-42	opposition	-3371 Jul 27 j 04:12	6° $\mathring{B}$ 03'05	-15°-1'-49
direct	-3379 Oct 05 j 11:22	24° $\mathring{A}$ 56'49		direct	-3371 Oct 15 j 17:23	4° $\mathring{B}$ 58'55	
conjunction	-3378 Jan 12 j 02:27	26° $\mathring{A}$ 39'38	-12°-44'00	conjunction	-3370 Jan 22 j 02:00	6° $\mathring{B}$ 37'43	-14°-26'-56
minimum elong	-3378 Jan 12 j 02:15	26° $\mathring{A}$ 39'37	12°44'09	minimum elong	-3370 Jan 22 j 01:51	6° $\mathring{B}$ 37'42	14°27'04
max. Earth dist.	-3378 Jan 15 j 09:29	26° $\mathring{A}$ 45'01	42.63912 AU	max. Earth dist.	-3370 Jan 25 j 03:32	6° $\mathring{B}$ 42'32	44.35234 AU
retrograde	-3378 Apr 26 j 00:10	28° $\mathring{A}$ 27'01		retrograde	-3370 May 05 j 19:03	8° $\mathring{B}$ 21'01	
min. Earth dist.	-3378 Jul 15 j 09:27	27° $\mathring{A}$ 23'44	40.80577 AU	min. Earth dist.	-3370 Jul 25 j 15:28	7° $\mathring{B}$ 18'58	42.52037 AU
opposition	-3378 Jul 18 j 14:01	27° $\mathring{A}$ 19'41	-13°-29'-1	opposition	-3370 Jul 28 j 15:25	7° $\mathring{B}$ 15'16	-15°-13'-4
direct	-3378 Oct 07 j 00:51	26° $\mathring{A}$ 14'11		direct	-3370 Oct 17 j 06:18	6° $\mathring{B}$ 11'16	
conjunction	-3377 Jan 13 j 15:08	27° $\mathring{A}$ 56'29	-12°-58'-34	conjunction	-3369 Jan 23 j 12:53	7° $\mathring{B}$ 49'36	-14°-37'-38
minimum elong	-3377 Jan 13 j 14:58	27° $\mathring{A}$ 56'28	12°58'42	minimum elong	-3369 Jan 23 j 12:45	7° $\mathring{B}$ 49'35	14°37'47
max. Earth dist.	-3377 Jan 16 j 20:44	28° $\mathring{A}$ 01'45	42.86603 AU	max. Earth dist.	-3369 Jan 26 j 14:24	7° $\mathring{B}$ 54'24	44.55285 AU
retrograde	-3377 Apr 27 j 13:22	29° $\mathring{A}$ 43'21		retrograde	-3369 May 07 j 05:26	9° $\mathring{B}$ 32'27	
min. Earth dist.	-3377 Jul 16 j 22:30	28° $\mathring{A}$ 40'18	41.03315 AU	min. Earth dist.	-3369 Jul 27 j 03:52	8° $\mathring{B}$ 30'30	42.72153 AU
opposition	-3377 Jul 20 j 03:07	28° $\mathring{A}$ 36'17	-13°-43'-47	opposition	-3369 Jul 30 j 02:25	8° $\mathring{B}$ 26'52	-15°-23'-49
direct	-3377 Oct 08 j 13:25	27° $\mathring{A}$ 31'00		direct	-3369 Oct 18 j 18:27	7° $\mathring{B}$ 23'03	
conjunction	-3376 Jan 15 j 03:46	29° $\mathring{A}$ 12'48	-13°-12'-38	conjunction	-3368 Jan 24 j 23:40	9° $\mathring{B}$ 00'56	-14°-47'-53
minimum elong	-3376 Jan 15 j 03:35	29° $\mathring{A}$ 12'48	13°12'46	minimum elong	-3368 Jan 24 j 23:32	9° $\mathring{B}$ 00'56	14°48'00
max. Earth dist.	-3376 Jan 18 j 09:40	29° $\mathring{A}$ 18'04	43.08960 AU	max. Earth dist.	-3368 Jan 28 j 00:56	9° $\mathring{B}$ 05'42	44.75136 AU
	-3376 Feb 14 j 09:06	0° $\mathring{B}$		retrograde	-3368 May 07 j 17:08	10° $\mathring{B}$ 43'20	



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 3

Attention, astronomical year style is used: The year -3368 in astronomical counting style is the year 3369 BCE in historical counting style.

min. Earth dist.	-3368 Jul 27 j 14:30	9° $\overline{341}$ '34	42.92033 AU	conjunction	-3359 Feb 03 j 16:48	19° $\overline{322}$ '36	-16°-1'-1
opposition	-3368 Jul 30 j 13:06	9° $\overline{337}$ '57	-15°-34'-4	minimum elong	-3359 Feb 03 j 16:43	19° $\overline{322}$ '36	16°01'09
direct	-3368 Oct 19 j 04:23	8° $\overline{334}$ '18		max. Earth dist.	-3359 Feb 06 j 10:15	19° $\overline{326}$ '42	46.37787 AU
				retrograde	-3359 May 18 j 06:10	21° $\overline{301}$ '23	
conjunction	-3367 Jan 25 j 10:02	10° $\overline{311}$ '46	-14°-57'-39	min. Earth dist.	-3359 Aug 07 j 15:11	20° $\overline{300}$ '34	44.54084 AU
minimum elong	-3367 Jan 25 j 09:55	10° $\overline{311}$ '46	14°57'48	opposition	-3359 Aug 10 j 04:34	19° $\overline{357}$ '30	-16°-46'-56
max. Earth dist.	-3367 Jan 28 j 10:08	10° $\overline{316}$ '26	44.94739 AU	direct	-3359 Oct 29 j 22:59	18° $\overline{355}$ '14	
retrograde	-3367 May 09 j 05:22	11° $\overline{353}$ '45					
min. Earth dist.	-3367 Jul 29 j 01:43	10° $\overline{352}$ '07	43.11663 AU	conjunction	-3358 Feb 05 j 01:52	20° $\overline{329}$ '19	-16°-7'-10
opposition	-3367 Jul 31 j 23:40	10° $\overline{348}$ '33	-15°-43'-52	minimum elong	-3358 Feb 05 j 01:50	20° $\overline{329}$ '19	16°07'18
direct	-3367 Oct 20 j 13:00	9° $\overline{345}$ '06		max. Earth dist.	-3358 Feb 07 j 18:26	20° $\overline{333}$ '21	46.53871 AU
				retrograde	-3358 May 19 j 14:23	22° $\overline{307}$ '44	
conjunction	-3366 Jan 26 j 20:27	11° $\overline{322}$ '10	-15°-6'-59	min. Earth dist.	-3358 Aug 08 j 23:34	21° $\overline{307}$ '04	44.70125 AU
minimum elong	-3366 Jan 26 j 20:20	11° $\overline{322}$ '09	15°07'07	opposition	-3358 Aug 11 j 13:10	21° $\overline{303}$ '59	-16°-53'00
max. Earth dist.	-3366 Jan 29 j 20:59	11° $\overline{326}$ '50	45.14075 AU	direct	-3358 Oct 31 j 08:50	20° $\overline{301}$ '50	
retrograde	-3366 May 10 j 14:30	13° $\overline{303}$ '43					
min. Earth dist.	-3366 Jul 30 j 13:16	12° $\overline{302}$ '13	43.30981 AU	conjunction	-3357 Feb 06 j 10:38	21° $\overline{335}$ '36	-16°-12'-56
opposition	-3366 Aug 02 j 09:59	11° $\overline{358}$ '43	-15°-53'-11	minimum elong	-3357 Feb 06 j 10:35	21° $\overline{335}$ '36	16°13'04
direct	-3366 Oct 22 j 00:13	10° $\overline{355}$ '27		max. Earth dist.	-3357 Feb 09 j 02:10	21° $\overline{339}$ '33	46.69680 AU
				retrograde	-3357 May 21 j 00:55	23° $\overline{313}$ '40	
conjunction	-3365 Jan 28 j 06:37	12° $\overline{332}$ '08	-15°-15'-53	min. Earth dist.	-3357 Aug 10 j 09:24	22° $\overline{313}$ '05	44.85910 AU
minimum elong	-3365 Jan 28 j 06:30	12° $\overline{332}$ '07	15°16'02	opposition	-3357 Aug 12 j 21:46	22° $\overline{310}$ '04	-16°-58'-38
max. Earth dist.	-3365 Jan 31 j 05:22	12° $\overline{336}$ '40	45.33082 AU	direct	-3357 Nov 01 j 15:52	21° $\overline{308}$ '03	
retrograde	-3365 May 12 j 00:04	14° $\overline{313}$ '16					
min. Earth dist.	-3365 Jul 31 j 23:30	13° $\overline{311}$ '57	43.49934 AU	conjunction	-3356 Feb 07 j 19:29	22° $\overline{341}$ '30	-16°-18'-18
opposition	-3365 Aug 03 j 20:07	13° $\overline{308}$ '28	-16°-2'-5	minimum elong	-3356 Feb 07 j 19:28	22° $\overline{341}$ '30	16°18'26
direct	-3365 Oct 23 j 10:55	12° $\overline{305}$ '23		max. Earth dist.	-3356 Feb 10 j 11:15	22° $\overline{345}$ '27	46.85243 AU
				retrograde	-3356 May 21 j 10:00	24° $\overline{319}$ '14	
conjunction	-3364 Jan 29 j 16:49	13° $\overline{341}$ '41	-15°-24'-22	min. Earth dist.	-3356 Aug 10 j 18:14	23° $\overline{318}$ '45	45.01425 AU
minimum elong	-3364 Jan 29 j 16:43	13° $\overline{341}$ '41	15°24'30	opposition	-3356 Aug 13 j 05:55	23° $\overline{315}$ '47	-17°-3'-53
max. Earth dist.	-3364 Feb 01 j 15:10	13° $\overline{346}$ '11	45.51677 AU	direct	-3356 Nov 01 j 23:34	22° $\overline{313}$ '55	
retrograde	-3364 May 12 j 08:49	15° $\overline{322}$ '27					
min. Earth dist.	-3364 Aug 01 j 11:33	14° $\overline{321}$ '11	43.68447 AU	conjunction	-3355 Feb 08 j 03:59	23° $\overline{347}$ '04	-16°-23'-17
opposition	-3364 Aug 04 j 05:59	14° $\overline{317}$ '49	-16°-10'-33	minimum elong	-3355 Feb 08 j 03:57	23° $\overline{347}$ '04	16°23'24
direct	-3364 Oct 23 j 22:13	13° $\overline{314}$ '54		max. Earth dist.	-3355 Feb 10 j 17:55	23° $\overline{350}$ '53	47.00550 AU
				retrograde	-3355 May 22 j 19:40	25° $\overline{324}$ '28	
conjunction	-3363 Jan 30 j 02:53	14° $\overline{350}$ '50	-15°-32'-28	min. Earth dist.	-3355 Aug 12 j 02:34	24° $\overline{324}$ '08	45.16679 AU
minimum elong	-3363 Jan 30 j 02:47	14° $\overline{350}$ '49	15°32'36	opposition	-3355 Aug 14 j 14:06	24° $\overline{321}$ '11	-17°-8'-43
max. Earth dist.	-3363 Feb 02 j 00:07	14° $\overline{355}$ '14	45.69825 AU	direct	-3355 Nov 03 j 06:03	23° $\overline{319}$ '27	
retrograde	-3363 May 13 j 18:19	16° $\overline{331}$ '11					
min. Earth dist.	-3363 Aug 02 j 21:34	15° $\overline{330}$ '05	43.86472 AU	conjunction	-3354 Feb 09 j 12:20	24° $\overline{352}$ '20	-16°-27'-53
opposition	-3363 Aug 05 j 15:42	15° $\overline{326}$ '44	-16°-18'-37	minimum elong	-3354 Feb 09 j 12:19	24° $\overline{352}$ '20	16°28'01
direct	-3363 Oct 25 j 08:41	14° $\overline{323}$ '58		max. Earth dist.	-3354 Feb 12 j 02:29	24° $\overline{356}$ '09	47.15569 AU
				retrograde	-3354 May 24 j 02:17	26° $\overline{329}$ '26	
conjunction	-3362 Jan 31 j 12:31	15° $\overline{359}$ '31	-15°-40'-11	min. Earth dist.	-3354 Aug 13 j 12:34	25° $\overline{329}$ '10	45.31612 AU
minimum elong	-3362 Jan 31 j 12:27	15° $\overline{359}$ '31	15°40'18	opposition	-3354 Aug 15 j 22:13	25° $\overline{326}$ '18	-17°-13'-11
max. Earth dist.	-3362 Feb 03 j 08:01	16° $\overline{303}$ '48	45.87476 AU	direct	-3354 Nov 04 j 15:12	24° $\overline{324}$ '44	
retrograde	-3362 May 15 j 06:44	17° $\overline{339}$ '29					
min. Earth dist.	-3362 Aug 04 j 08:39	16° $\overline{338}$ '27	44.04013 AU	conjunction	-3353 Feb 10 j 20:46	25° $\overline{357}$ '20	-16°-32'-7
opposition	-3362 Aug 07 j 01:23	16° $\overline{335}$ '11	-16°-26'-18	minimum elong	-3353 Feb 10 j 20:45	25° $\overline{357}$ '20	16°32'14
direct	-3362 Oct 26 j 16:01	15° $\overline{332}$ '33		max. Earth dist.	-3353 Feb 13 j 09:38	26° $\overline{301}$ '04	47.30260 AU
				retrograde	-3353 May 25 j 08:09	27° $\overline{334}$ '08	
conjunction	-3361 Feb 01 j 22:15	17° $\overline{307}$ '44	-15°-47'-31	min. Earth dist.	-3353 Aug 14 j 20:21	26° $\overline{334}$ '01	45.46174 AU
minimum elong	-3361 Feb 01 j 22:10	17° $\overline{307}$ '43	15°47'39	opposition	-3353 Aug 17 j 05:55	26° $\overline{331}$ '10	-17°-17'-16
max. Earth dist.	-3361 Feb 04 j 17:41	17° $\overline{311}$ '59	46.04658 AU	direct	-3353 Nov 06 j 01:31	25° $\overline{329}$ '44	
retrograde	-3361 May 16 j 15:53	18° $\overline{347}$ '17					
min. Earth dist.	-3361 Aug 05 j 19:18	17° $\overline{346}$ '19	44.21082 AU	conjunction	-3352 Feb 12 j 05:05	27° $\overline{302}$ '04	-16°-36'-1
opposition	-3361 Aug 08 j 10:35	17° $\overline{343}$ '08	-16°-33'-35	minimum elong	-3352 Feb 12 j 05:04	27° $\overline{302}$ '04	16°36'09
direct	-3361 Oct 28 j 01:30	16° $\overline{340}$ '37		max. Earth dist.	-3352 Feb 14 j 16:29	27° $\overline{305}$ '42	47.44537 AU
				retrograde	-3352 May 25 j 17:45	28° $\overline{338}$ '35	
conjunction	-3360 Feb 03 j 07:40	18° $\overline{315}$ '25	-15°-54'-27	min. Earth dist.	-3352 Aug 15 j 06:08	27° $\overline{338}$ '31	45.60300 AU
minimum elong	-3360 Feb 03 j 07:37	18° $\overline{315}$ '25	15°54'35	opposition	-3352 Aug 17 j 13:45	27° $\overline{335}$ '46	-17°-21'-1
max. Earth dist.	-3360 Feb 06 j 01:09	18° $\overline{319}$ '32	46.21411 AU	direct	-3352 Nov 06 j 09:12	26° $\overline{334}$ '28	
retrograde	-3360 May 17 j 00:22	19° $\overline{354}$ '35					
min. Earth dist.	-3360 Aug 06 j 04:32	18° $\overline{353}$ '43	44.37757 AU	conjunction	-3351 Feb 12 j 13:19	28° $\overline{306}$ '31	-16°-39'-35
opposition	-3360 Aug 08 j 19:40	18° $\overline{350}$ '33	-16°-40'-28	minimum elong	-3351 Feb 12 j 13:20	28° $\overline{306}$ '31	16°39'42
direct	-3360 Oct 28 j 10:50	17° $\overline{348}$ '10		max. Earth dist.	-3351 Feb 15 j 00:16	28° $\overline{310}$ '07	47.58356 AU



# Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 4

Attention, astronomical year style is used: The year -3351 in astronomical counting style is the year 3352 BCE in historical counting style.

retrograde	-3351 May 27 j 02:46	29° $\overline{3}$ 42'44		minimum elong	-3343 Feb 21 j 02:19	6° $\approx$ 28'37	16°56'38
min. Earth dist.	-3351 Aug 16 j 14:47	28° $\overline{3}$ 42'44	45.73922 AU	max. Earth dist.	-3343 Feb 23 j 04:30	6° $\approx$ 31'36	48.53658 AU
opposition	-3351 Aug 18 j 21:21	28° $\overline{3}$ 40'03	-17°-24'-26	retrograde	-3343 Jun 04 j 09:53	8° $\approx$ 02'31	
direct	-3351 Nov 07 j 15:54	27° $\overline{3}$ 38'51		min. Earth dist.	-3343 Aug 25 j 05:26	7° $\approx$ 02'59	46.68046 AU
				opposition	-3343 Aug 27 j 04:39	7° $\approx$ 00'42	-17°-39'-48
conjunction	-3350 Feb 13 j 21:24	29° $\overline{3}$ 10'38	-16°-42'-50	direct	-3343 Nov 16 j 02:37	6° $\approx$ 00'12	
minimum elong	-3350 Feb 13 j 21:24	29° $\overline{3}$ 10'38	16°42'58				
max. Earth dist.	-3350 Feb 16 j 06:00	29° $\overline{3}$ 14'04	47.71676 AU	conjunction	-3342 Feb 22 j 09:21	7° $\approx$ 30'01	-16°-57'-9
	-3350 Mar 21 j 11:10	0° $\approx$		minimum elong	-3342 Feb 22 j 09:24	7° $\approx$ 30'02	16°57'15
retrograde	-3350 May 28 j 12:16	0° $\approx$ 46'32		max. Earth dist.	-3342 Feb 24 j 10:32	7° $\approx$ 32'57	48.64142 AU
	-3350 Aug 06 j 11:12	30° $\overline{R}$ $\overline{3}$		retrograde	-3342 Jun 05 j 16:23	9° $\approx$ 03'44	
min. Earth dist.	-3350 Aug 17 j 23:13	29° $\overline{3}$ 46'36	45.87050 AU	min. Earth dist.	-3342 Aug 26 j 13:44	8° $\approx$ 04'15	46.78379 AU
opposition	-3350 Aug 20 j 04:51	29° $\overline{3}$ 43'58	-17°-27'-32	opposition	-3342 Aug 28 j 11:04	8° $\approx$ 02'03	-17°-40'-12
direct	-3350 Nov 08 j 21:55	28° $\overline{3}$ 42'52		direct	-3342 Nov 17 j 10:21	7° $\approx$ 01'40	
	-3349 Feb 05 j 07:13	0° $\approx$					
conjunction	-3349 Feb 15 j 05:25	0° $\approx$ 14'22	-16°-45'-46	conjunction	-3341 Feb 23 j 16:34	8° $\approx$ 31'19	-16°-57'-28
minimum elong	-3349 Feb 15 j 05:27	0° $\approx$ 14'22	16°45'53	minimum elong	-3341 Feb 23 j 16:38	8° $\approx$ 31'20	16°57'36
max. Earth dist.	-3349 Feb 17 j 13:40	0° $\approx$ 17'46	47.84499 AU	max. Earth dist.	-3341 Feb 25 j 17:22	8° $\approx$ 34'13	48.74290 AU
retrograde	-3349 May 29 j 17:25	1° $\approx$ 49'57		retrograde	-3341 Jun 07 j 00:20	10° $\approx$ 04'50	
min. Earth dist.	-3349 Aug 19 j 08:34	0° $\approx$ 50'01	45.99682 AU	min. Earth dist.	-3341 Aug 27 j 20:44	9° $\approx$ 05'27	46.88317 AU
opposition	-3349 Aug 21 j 12:13	0° $\approx$ 47'29	-17°-30'-18	opposition	-3341 Aug 29 j 17:18	9° $\approx$ 03'17	-17°-40'-18
	-3349 Oct 06 j 12:31	30° $\overline{R}$ $\overline{3}$		direct	-3341 Nov 18 j 16:12	8° $\approx$ 03'01	
direct	-3349 Nov 10 j 07:22	29° $\overline{3}$ 46'28		conjunction	-3340 Feb 24 j 23:37	9° $\approx$ 32'31	-16°-57'-30
	-3349 Dec 14 j 16:37	0° $\approx$		minimum elong	-3340 Feb 24 j 23:41	9° $\approx$ 32'31	16°57'36
				max. Earth dist.	-3340 Feb 26 j 22:06	9° $\approx$ 35'16	48.84011 AU
conjunction	-3348 Feb 16 j 13:18	1° $\approx$ 17'41	-16°-48'-23	retrograde	-3340 Jun 07 j 09:45	11° $\approx$ 05'49	
minimum elong	-3348 Feb 16 j 13:18	1° $\approx$ 17'41	16°48'31	min. Earth dist.	-3340 Aug 28 j 04:08	10° $\approx$ 06'30	46.97810 AU
max. Earth dist.	-3348 Feb 18 j 19:50	1° $\approx$ 20'59	47.96870 AU	opposition	-3340 Aug 29 j 23:26	10° $\approx$ 04'25	-17°-40'-5
retrograde	-3348 May 29 j 22:31	2° $\approx$ 52'56		direct	-3340 Nov 18 j 19:55	9° $\approx$ 04'16	
min. Earth dist.	-3348 Aug 19 j 15:42	1° $\approx$ 53'06	46.11882 AU				
opposition	-3348 Aug 21 j 19:09	1° $\approx$ 50'34	-17°-32'-45	conjunction	-3339 Feb 25 j 06:44	10° $\approx$ 33'36	-16°-57'-15
direct	-3348 Nov 10 j 16:25	0° $\approx$ 49'37		minimum elong	-3339 Feb 25 j 06:48	10° $\approx$ 33'36	16°57'22
				max. Earth dist.	-3339 Feb 27 j 04:45	10° $\approx$ 36'18	48.93251 AU
conjunction	-3347 Feb 16 j 20:54	2° $\approx$ 20'34	-16°-50'-41	retrograde	-3339 Jun 08 j 15:37	12° $\approx$ 06'42	
minimum elong	-3347 Feb 16 j 20:56	2° $\approx$ 20'34	16°50'48	min. Earth dist.	-3339 Aug 29 j 12:17	11° $\approx$ 07'24	47.06782 AU
max. Earth dist.	-3347 Feb 19 j 02:22	2° $\approx$ 23'47	48.08834 AU	opposition	-3339 Aug 31 j 05:37	11° $\approx$ 05'24	-17°-39'-37
retrograde	-3347 May 31 j 05:46	3° $\approx$ 55'32		direct	-3339 Nov 20 j 02:35	10° $\approx$ 05'20	
min. Earth dist.	-3347 Aug 21 j 00:31	2° $\approx$ 55'41	46.23716 AU				
opposition	-3347 Aug 23 j 02:12	2° $\approx$ 53'15	-17°-34'-51	conjunction	-3338 Feb 26 j 13:37	11° $\approx$ 34'30	-16°-56'-45
direct	-3347 Nov 12 j 00:20	1° $\approx$ 52'22		minimum elong	-3338 Feb 26 j 13:43	11° $\approx$ 34'31	16°56'50
				max. Earth dist.	-3338 Feb 28 j 09:31	11° $\approx$ 37'05	49.01976 AU
conjunction	-3346 Feb 18 j 04:22	3° $\approx$ 23'03	-16°-52'-38	retrograde	-3338 Jun 09 j 20:33	13° $\approx$ 07'24	
minimum elong	-3346 Feb 18 j 04:23	3° $\approx$ 23'03	16°52'45	min. Earth dist.	-3338 Aug 30 j 18:49	12° $\approx$ 08'10	47.15221 AU
max. Earth dist.	-3346 Feb 20 j 09:43	3° $\approx$ 26'15	48.20471 AU	opposition	-3338 Sep 01 j 11:39	12° $\approx$ 06'12	-17°-38'-52
retrograde	-3346 Jun 01 j 12:49	4° $\approx$ 57'43		direct	-3338 Nov 21 j 10:07	11° $\approx$ 06'12	
min. Earth dist.	-3346 Aug 22 j 07:44	3° $\approx$ 57'57	46.35223 AU				
opposition	-3346 Aug 24 j 08:58	3° $\approx$ 55'32	-17°-36'-36	conjunction	-3337 Feb 27 j 20:33	12° $\approx$ 35'12	-16°-55'-58
direct	-3346 Nov 13 j 07:48	2° $\approx$ 54'44		minimum elong	-3337 Feb 27 j 20:38	12° $\approx$ 35'13	16°56'05
				max. Earth dist.	-3337 Mar 01 j 14:59	12° $\approx$ 37'42	49.10158 AU
conjunction	-3345 Feb 19 j 11:46	4° $\approx$ 25'11	-16°-54'-16	retrograde	-3337 Jun 11 j 01:41	14° $\approx$ 07'53	
minimum elong	-3345 Feb 19 j 11:49	4° $\approx$ 25'11	16°54'22	min. Earth dist.	-3337 Sep 01 j 03:09	13° $\approx$ 08'37	47.23136 AU
max. Earth dist.	-3345 Feb 21 j 15:12	4° $\approx$ 28'15	48.31807 AU	opposition	-3337 Sep 02 j 17:34	13° $\approx$ 06'46	-17°-37'-50
retrograde	-3345 Jun 02 j 22:32	5° $\approx$ 59'34		direct	-3337 Nov 22 j 17:57	12° $\approx$ 06'50	
min. Earth dist.	-3345 Aug 23 j 14:59	4° $\approx$ 59'52	46.46452 AU				
opposition	-3345 Aug 25 j 15:35	4° $\approx$ 57'30	-17°-38'-1	conjunction	-3336 Feb 29 j 03:28	13° $\approx$ 35'38	-16°-54'-55
direct	-3345 Nov 14 j 11:48	3° $\approx$ 56'47		minimum elong	-3336 Feb 29 j 03:34	13° $\approx$ 35'39	16°55'01
				max. Earth dist.	-3336 Mar 01 j 21:06	13° $\approx$ 38'05	49.17851 AU
conjunction	-3344 Feb 20 j 19:10	5° $\approx$ 27'01	-16°-55'-33		-3336 May 14 j 15:55	15° $\approx$	
minimum elong	-3344 Feb 20 j 19:12	5° $\approx$ 27'01	16°55'40	retrograde	-3336 Jun 11 j 07:10	15° $\approx$ 08'07	
max. Earth dist.	-3344 Feb 22 j 22:44	5° $\approx$ 30'05	48.42867 AU		-3336 Jul 09 j 06:42	15° $\overline{R}$ $\approx$	
retrograde	-3344 Jun 03 j 05:08	7° $\approx$ 01'09		min. Earth dist.	-3336 Sep 01 j 09:28	14° $\approx$ 08'54	47.30568 AU
min. Earth dist.	-3344 Aug 23 j 23:11	6° $\approx$ 01'29	46.57392 AU	opposition	-3336 Sep 02 j 23:17	14° $\approx$ 07'04	-17°-36'-33
opposition	-3344 Aug 25 j 22:12	5° $\approx$ 59'12	-17°-39'-5	direct	-3336 Nov 23 j 01:26	13° $\approx$ 07'10	
direct	-3344 Nov 14 j 18:40	4° $\approx$ 58'35					
				conjunction	-3335 Mar 01 j 09:54	14° $\approx$ 35'48	-16°-53'-36
conjunction	-3343 Feb 21 j 02:15	6° $\approx$ 28'36	-16°-56'-31	minimum elong	-3335 Mar 01 j 09:59	14° $\approx$ 35'48	16°53'43



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 5

Attention, astronomical year style is used: The year -3335 in astronomical counting style is the year 3336 BCE in historical counting style.

max. Earth dist.	-3335 Mar 03 j 01:20	14° $\approx$ 38'06	49.25094 AU	max. Earth dist.	-3327 Mar 10 j 19:28	22° $\approx$ 31'10	49.70662 AU
	-3335 Mar 18 j 20:48	15° $\approx$		retrograde	-3327 Jun 20 j 13:46	24° $\approx$ 00'20	
retrograde	-3335 Jun 12 j 16:42	16° $\approx$ 08'03		opposition	-3327 Sep 11 j 23:27	22° $\approx$ 59'57	-17°-11'-48
min. Earth dist.	-3335 Sep 02 j 16:23	15° $\approx$ 08'50	47.37593 AU	min. Earth dist.	-3327 Sep 10 j 20:23	23° $\approx$ 01'15	47.81272 AU
opposition	-3335 Sep 04 j 05:02	15° $\approx$ 07'04	-17°-34'-58	direct	-3327 Dec 02 j 02:21	22° $\approx$ 00'32	
	-3335 Sep 10 j 08:04	15° $\approx$					
direct	-3335 Nov 24 j 04:27	14° $\approx$ 07'13		conjunction	-3326 Mar 10 j 19:07	23° $\approx$ 28'02	-16°-29'-2
	-3334 Feb 04 j 11:38	15° $\approx$		minimum elong	-3326 Mar 10 j 19:15	23° $\approx$ 28'03	16°29'08
				max. Earth dist.	-3326 Mar 12 j 00:45	23° $\approx$ 29'45	49.74494 AU
conjunction	-3334 Mar 02 j 16:31	15° $\approx$ 35'41	-16°-52'00	retrograde	-3326 Jun 21 j 17:50	24° $\approx$ 58'51	
minimum elong	-3334 Mar 02 j 16:39	15° $\approx$ 35'41	16°52'06	min. Earth dist.	-3326 Sep 12 j 02:04	23° $\approx$ 59'47	47.84759 AU
max. Earth dist.	-3334 Mar 04 j 07:59	15° $\approx$ 37'59	49.31955 AU	opposition	-3326 Sep 13 j 04:24	23° $\approx$ 58'32	-17°-7'-42
retrograde	-3334 Jun 13 j 23:46	17° $\approx$ 07'43		direct	-3326 Dec 03 j 09:38	22° $\approx$ 59'08	
min. Earth dist.	-3334 Sep 03 j 23:28	16° $\approx$ 08'29	47.44247 AU				
opposition	-3334 Sep 05 j 10:34	16° $\approx$ 06'48	-17°-33'-5	conjunction	-3325 Mar 12 j 01:18	24° $\approx$ 26'32	-16°-25'-1
direct	-3334 Nov 25 j 09:15	15° $\approx$ 06'59		minimum elong	-3325 Mar 12 j 01:27	24° $\approx$ 26'33	16°25'06
				max. Earth dist.	-3325 Mar 13 j 04:20	24° $\approx$ 28'05	49.77787 AU
conjunction	-3333 Mar 03 j 23:00	16° $\approx$ 35'17	-16°-50'-7	retrograde	-3325 Jun 23 j 01:52	25° $\approx$ 57'12	
minimum elong	-3333 Mar 03 j 23:06	16° $\approx$ 35'17	16°50'13	min. Earth dist.	-3325 Sep 13 j 08:49	24° $\approx$ 58'07	47.87725 AU
max. Earth dist.	-3333 Mar 05 j 12:44	16° $\approx$ 37'29	49.38486 AU	opposition	-3325 Sep 14 j 09:28	24° $\approx$ 56'56	-17°-3'-22
retrograde	-3333 Jun 15 j 04:33	18° $\approx$ 07'08		direct	-3325 Dec 04 j 13:20	23° $\approx$ 57'33	
min. Earth dist.	-3333 Sep 05 j 04:57	17° $\approx$ 07'57	47.50582 AU				
opposition	-3333 Sep 06 j 16:01	17° $\approx$ 06'16	-17°-30'-54	conjunction	-3324 Mar 12 j 07:30	25° $\approx$ 24'52	-16°-20'-45
direct	-3333 Nov 26 j 15:07	16° $\approx$ 06'30		minimum elong	-3324 Mar 12 j 07:39	25° $\approx$ 24'53	16°20'51
				max. Earth dist.	-3324 Mar 13 j 10:09	25° $\approx$ 26'24	49.80572 AU
conjunction	-3332 Mar 04 j 05:23	17° $\approx$ 34'39	-16°-47'-56	retrograde	-3324 Jun 23 j 08:22	26° $\approx$ 55'24	
minimum elong	-3332 Mar 04 j 05:30	17° $\approx$ 34'40	16°48'02	opposition	-3324 Sep 14 j 14:18	25° $\approx$ 55'10	-16°-58'-48
max. Earth dist.	-3332 Mar 05 j 18:08	17° $\approx$ 36'48	49.44695 AU	min. Earth dist.	-3324 Sep 13 j 15:22	25° $\approx$ 56'15	47.90197 AU
retrograde	-3332 Jun 15 j 07:33	19° $\approx$ 06'19		direct	-3324 Dec 04 j 17:32	24° $\approx$ 55'48	
opposition	-3332 Sep 06 j 21:24	18° $\approx$ 05'32	-17°-28'-26				
min. Earth dist.	-3332 Sep 05 j 12:12	18° $\approx$ 07'08	47.56606 AU	conjunction	-3323 Mar 13 j 13:29	26° $\approx$ 23'01	-16°-16'-15
direct	-3332 Nov 26 j 23:38	17° $\approx$ 05'49		minimum elong	-3323 Mar 13 j 13:39	26° $\approx$ 23'01	16°16'20
				max. Earth dist.	-3323 Mar 14 j 14:08	26° $\approx$ 24'26	49.82918 AU
conjunction	-3331 Mar 05 j 11:45	18° $\approx$ 33'50	-16°-45'-28	retrograde	-3323 Jun 24 j 14:21	27° $\approx$ 53'24	
minimum elong	-3331 Mar 05 j 11:51	18° $\approx$ 33'50	16°45'33	opposition	-3323 Sep 15 j 19:03	26° $\approx$ 53'12	-16°-53'-57
max. Earth dist.	-3331 Mar 07 j 00:06	18° $\approx$ 35'57	49.50620 AU	min. Earth dist.	-3323 Sep 14 j 20:24	26° $\approx$ 54'17	47.92263 AU
retrograde	-3331 Jun 16 j 12:25	20° $\approx$ 05'20		direct	-3323 Dec 05 j 21:27	25° $\approx$ 53'51	
min. Earth dist.	-3331 Sep 06 j 17:44	19° $\approx$ 06'13	47.62322 AU				
opposition	-3331 Sep 08 j 02:40	19° $\approx$ 04'38	-17°-25'-39	conjunction	-3322 Mar 14 j 19:21	27° $\approx$ 20'59	-16°-11'-29
direct	-3331 Nov 28 j 06:46	18° $\approx$ 04'59		minimum elong	-3322 Mar 14 j 19:29	27° $\approx$ 21'00	16°11'34
				max. Earth dist.	-3322 Mar 15 j 18:54	27° $\approx$ 22'20	49.84870 AU
conjunction	-3330 Mar 06 j 17:52	19° $\approx$ 32'52	-16°-42'-42	retrograde	-3322 Jun 25 j 16:45	28° $\approx$ 51'15	
minimum elong	-3330 Mar 06 j 18:00	19° $\approx$ 32'53	16°42'48	opposition	-3322 Sep 16 j 23:53	27° $\approx$ 51'05	-16°-48'-51
max. Earth dist.	-3330 Mar 08 j 04:16	19° $\approx$ 34'52	49.56227 AU	min. Earth dist.	-3322 Sep 16 j 03:17	27° $\approx$ 52'04	47.93962 AU
retrograde	-3330 Jun 17 j 20:49	21° $\approx$ 04'13		direct	-3322 Dec 07 j 05:25	26° $\approx$ 51'45	
min. Earth dist.	-3330 Sep 08 j 00:17	20° $\approx$ 05'07	47.67710 AU				
opposition	-3330 Sep 09 j 07:59	20° $\approx$ 03'36	-17°-22'-35	conjunction	-3321 Mar 16 j 01:22	28° $\approx$ 18'49	-16°-6'-27
direct	-3330 Nov 29 j 10:01	19° $\approx$ 04'01		minimum elong	-3321 Mar 16 j 01:33	28° $\approx$ 18'49	16°06'31
				max. Earth dist.	-3321 Mar 17 j 00:27	28° $\approx$ 20'08	49.86495 AU
conjunction	-3329 Mar 08 j 00:16	20° $\approx$ 31'48	-16°-39'-40	retrograde	-3321 Jun 26 j 20:09	29° $\approx$ 48'59	
minimum elong	-3329 Mar 08 j 00:23	20° $\approx$ 31'48	16°39'45	min. Earth dist.	-3321 Sep 17 j 08:01	28° $\approx$ 49'50	47.95339 AU
max. Earth dist.	-3329 Mar 09 j 10:25	20° $\approx$ 33'46	49.61478 AU	opposition	-3321 Sep 18 j 04:24	28° $\approx$ 48'51	-16°-43'-27
retrograde	-3329 Jun 19 j 03:17	22° $\approx$ 03'00		direct	-3321 Dec 08 j 12:42	27° $\approx$ 49'31	
min. Earth dist.	-3329 Sep 09 j 07:02	21° $\approx$ 03'55	47.72700 AU				
opposition	-3329 Sep 10 j 13:05	21° $\approx$ 02'29	-17°-19'-15	conjunction	-3320 Mar 16 j 07:11	29° $\approx$ 16'32	-16°-1'-9
direct	-3329 Nov 30 j 14:55	20° $\approx$ 02'57		minimum elong	-3320 Mar 16 j 07:20	29° $\approx$ 16'33	16°01'13
				max. Earth dist.	-3320 Mar 17 j 04:12	29° $\approx$ 17'44	49.87816 AU
conjunction	-3328 Mar 08 j 06:35	21° $\approx$ 30'38	-16°-36'-22		-3320 Apr 18 j 08:37	0° $\approx$	
minimum elong	-3328 Mar 08 j 06:44	21° $\approx$ 30'39	16°36'28	retrograde	-3320 Jun 27 j 04:01	0° $\approx$ 46'37	
max. Earth dist.	-3328 Mar 09 j 14:42	21° $\approx$ 32'30	49.66316 AU		-3320 Sep 06 j 12:02	30° $\approx$	
retrograde	-3328 Jun 19 j 09:19	23° $\approx$ 01'42		opposition	-3320 Sep 18 j 09:08	29° $\approx$ 46'33	-16°-37'-47
opposition	-3328 Sep 10 j 18:12	22° $\approx$ 01'16	-17°-15'-39	min. Earth dist.	-3320 Sep 17 j 13:57	29° $\approx$ 47'27	47.96435 AU
min. Earth dist.	-3328 Sep 09 j 12:45	22° $\approx$ 02'40	47.77243 AU	direct	-3320 Dec 08 j 15:23	28° $\approx$ 47'14	
direct	-3328 Nov 30 j 19:45	21° $\approx$ 01'47			-3319 Mar 07 j 02:51	0° $\approx$	
conjunction	-3327 Mar 09 j 12:44	22° $\approx$ 29'24	-16°-32'-49	conjunction	-3319 Mar 17 j 12:55	0° $\approx$ 14'12	-15°-55'-34
minimum elong	-3327 Mar 09 j 12:53	22° $\approx$ 29'24	16°32'54	minimum elong	-3319 Mar 17 j 13:06	0° $\approx$ 14'13	15°55'39



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 6

Attention, astronomical year style is used: The year -3319 in astronomical counting style is the year 3320 BCE in historical counting style.

max. Earth dist.	-3319 Mar 18 j 10:01	0° <del>15</del> '24	49.88857 AU	retrograde	-3311 Jul 06 j 02:04	9° <del>15</del> '04	
retrograde	-3319 Jun 28 j 10:09	1° <del>14</del> '13		opposition	-3311 Sep 27 j 01:55	8° <del>15</del> '17	-15°-35'-15
opposition	-3319 Sep 19 j 13:48	0° <del>14</del> '12	-16°-31'-51	min. Earth dist.	-3311 Sep 26 j 17:54	8° <del>15</del> '40	47.88495 AU
min. Earth dist.	-3319 Sep 18 j 19:43	0° <del>14</del> '03	47.97233 AU	direct	-3311 Dec 17 j 12:47	7° <del>15</del> '01	
	-3319 Nov 02 j 02:42	30° <del>15</del> ' <del>44</del>					
direct	-3319 Dec 09 j 19:40	29° <del>15</del> ' <del>44</del> '55		conjunction	-3310 Mar 26 j 17:45	8° <del>15</del> '52	-14°-54'-19
	-3318 Jan 16 j 06:11	0° <del>15</del> '		minimum elong	-3310 Mar 26 j 17:57	8° <del>15</del> '52	14°54'23
				max. Earth dist.	-3310 Mar 27 j 01:11	8° <del>15</del> '53	49.79963 AU
conjunction	-3318 Mar 18 j 18:42	1° <del>15</del> '11	-15°-49'-44	retrograde	-3310 Jul 07 j 08:16	10° <del>15</del> '22	21
minimum elong	-3318 Mar 18 j 18:52	1° <del>15</del> '11	15°49'48	opposition	-3310 Sep 28 j 06:17	9° <del>15</del> '22	-15°-27'-6
max. Earth dist.	-3318 Mar 19 j 14:03	1° <del>15</del> '12	49.89616 AU	min. Earth dist.	-3310 Sep 27 j 23:49	9° <del>15</del> '22	47.85352 AU
retrograde	-3318 Jun 29 j 16:33	2° <del>15</del> '41	'48	direct	-3310 Dec 18 j 16:58	8° <del>15</del> '23	16
opposition	-3318 Sep 20 j 18:17	1° <del>15</del> '41	-16°-25'-38				
min. Earth dist.	-3318 Sep 20 j 00:34	1° <del>15</del> '42	47.97732 AU	conjunction	-3309 Mar 27 j 23:42	9° <del>15</del> '50	-14°-46'-20
direct	-3318 Dec 10 j 22:52	0° <del>15</del> '42	'36	minimum elong	-3309 Mar 27 j 23:53	9° <del>15</del> '50	14°46'23
				max. Earth dist.	-3309 Mar 28 j 06:56	9° <del>15</del> '50	49.76767 AU
conjunction	-3317 Mar 20 j 00:35	2° <del>15</del> '09	-15°-43'-38	retrograde	-3309 Jul 08 j 13:36	11° <del>15</del> '19	34
minimum elong	-3317 Mar 20 j 00:46	2° <del>15</del> '09	15°43'43	opposition	-3309 Sep 29 j 10:42	10° <del>15</del> '19	-15°-18'-40
max. Earth dist.	-3317 Mar 20 j 18:52	2° <del>15</del> '10	49.90036 AU	min. Earth dist.	-3309 Sep 29 j 05:23	10° <del>15</del> '20	47.81865 AU
retrograde	-3317 Jun 30 j 20:44	3° <del>15</del> '39	'25	direct	-3309 Dec 19 j 21:53	9° <del>15</del> '20	26
opposition	-3317 Sep 21 j 22:55	2° <del>15</del> '39	-16°-19'-9				
min. Earth dist.	-3317 Sep 21 j 07:24	2° <del>15</del> '40	47.97865 AU	conjunction	-3308 Mar 28 j 05:24	10° <del>15</del> '47	-14°-38'-4
direct	-3317 Dec 12 j 04:39	1° <del>15</del> '40	'20	minimum elong	-3308 Mar 28 j 05:37	10° <del>15</del> '47	14°38'08
				max. Earth dist.	-3308 Mar 28 j 10:55	10° <del>15</del> '47	49.73261 AU
conjunction	-3316 Mar 20 j 06:29	3° <del>15</del> '07	-15°-37'-16	retrograde	-3308 Jul 08 j 20:35	12° <del>15</del> '16	44
minimum elong	-3316 Mar 20 j 06:40	3° <del>15</del> '07	15°37'20	opposition	-3308 Sep 29 j 15:02	11° <del>15</del> '16	-15°-9'-59
max. Earth dist.	-3316 Mar 20 j 23:53	3° <del>15</del> '08	49.90071 AU	min. Earth dist.	-3308 Sep 29 j 10:02	11° <del>15</del> '17	47.78084 AU
retrograde	-3316 Jun 30 j 23:43	4° <del>15</del> '37	'06	direct	-3308 Dec 20 j 00:26	10° <del>15</del> '17	35
opposition	-3316 Sep 22 j 03:21	3° <del>15</del> '37	-16°-12'-25				
min. Earth dist.	-3316 Sep 21 j 12:17	3° <del>15</del> '37	47.97564 AU	conjunction	-3307 Mar 29 j 11:11	11° <del>15</del> '44	-14°-29'-34
direct	-3316 Dec 12 j 11:53	2° <del>15</del> '38	'05	minimum elong	-3307 Mar 29 j 11:22	11° <del>15</del> '44	14°29'37
				max. Earth dist.	-3307 Mar 29 j 15:40	11° <del>15</del> '44	49.69458 AU
conjunction	-3315 Mar 21 j 12:20	4° <del>15</del> '05	-15°-30'-41	retrograde	-3307 Jul 10 j 01:22	13° <del>15</del> '13	55
minimum elong	-3315 Mar 21 j 12:31	4° <del>15</del> '05	15°30'46	opposition	-3307 Sep 30 j 19:31	12° <del>15</del> '14	-15°-1'-1
max. Earth dist.	-3315 Mar 22 j 03:15	4° <del>15</del> '05	49.89641 AU	min. Earth dist.	-3307 Sep 30 j 16:22	12° <del>15</del> '14	47.74010 AU
retrograde	-3315 Jul 02 j 06:33	5° <del>15</del> '34	'49	direct	-3307 Dec 21 j 05:33	11° <del>15</del> '14	47
opposition	-3315 Sep 23 j 07:57	4° <del>15</del> '35	-16°-5'-27				
min. Earth dist.	-3315 Sep 22 j 18:47	4° <del>15</del> '35	47.96782 AU	conjunction	-3306 Mar 30 j 17:00	12° <del>15</del> '41	-14°-20'-48
direct	-3315 Dec 13 j 16:02	3° <del>15</del> '35	'51	minimum elong	-3306 Mar 30 j 17:13	12° <del>15</del> '41	14°20'51
				max. Earth dist.	-3306 Mar 30 j 20:55	12° <del>15</del> '41	49.65375 AU
conjunction	-3314 Mar 22 j 18:18	5° <del>15</del> '02	-15°-23'-52	retrograde	-3306 Jul 11 j 04:30	14° <del>15</del> '11	12
minimum elong	-3314 Mar 22 j 18:30	5° <del>15</del> '02	15°23'55	opposition	-3306 Oct 01 j 23:53	13° <del>15</del> '11	-14°-51'-48
max. Earth dist.	-3314 Mar 23 j 08:40	5° <del>15</del> '03	49.88702 AU	min. Earth dist.	-3306 Oct 01 j 20:53	13° <del>15</del> '11	47.69620 AU
retrograde	-3314 Jul 03 j 13:40	6° <del>15</del> '32	'30	direct	-3306 Dec 22 j 12:17	12° <del>15</del> '12	05
opposition	-3314 Sep 24 j 12:33	5° <del>15</del> '32	-15°-58'-15				
min. Earth dist.	-3314 Sep 24 j 01:03	5° <del>15</del> '33	47.95456 AU	conjunction	-3305 Mar 31 j 22:53	13° <del>15</del> '39	-14°-11'-46
direct	-3314 Dec 14 j 19:34	4° <del>15</del> '33	'34	minimum elong	-3305 Mar 31 j 23:05	13° <del>15</del> '39	14°11'49
				max. Earth dist.	-3305 Apr 01 j 00:35	13° <del>15</del> '39	49.60948 AU
conjunction	-3313 Mar 24 j 00:17	6° <del>15</del> '00	-15°-16'-50	retrograde	-3305 Jul 12 j 10:47	15° <del>15</del> '08	38
minimum elong	-3313 Mar 24 j 00:28	6° <del>15</del> '00	15°16'54	opposition	-3305 Oct 03 j 04:16	14° <del>15</del> '08	-14°-42'-19
max. Earth dist.	-3313 Mar 24 j 12:10	6° <del>15</del> '01	49.87234 AU	min. Earth dist.	-3305 Oct 03 j 03:05	14° <del>15</del> '08	47.64874 AU
retrograde	-3313 Jul 04 j 21:25	7° <del>15</del> '30	'08	direct	-3305 Dec 23 j 16:22	13° <del>15</del> '09	33
opposition	-3313 Sep 25 j 16:56	6° <del>15</del> '30	-15°-50'-49				
min. Earth dist.	-3313 Sep 25 j 06:14	6° <del>15</del> '30	47.93609 AU	conjunction	-3304 Apr 01 j 04:57	14° <del>15</del> '36	-14°-2'-30
direct	-3313 Dec 15 j 21:58	5° <del>15</del> '31	'10	minimum elong	-3304 Apr 01 j 05:10	14° <del>15</del> '36	14°02'34
				max. Earth dist.	-3304 Apr 01 j 06:19	14° <del>15</del> '36	49.56129 AU
conjunction	-3312 Mar 24 j 06:13	6° <del>15</del> '58	-15°-9'-34	retrograde	-3304 Jul 12 j 17:39	16° <del>15</del> '06	14
minimum elong	-3312 Mar 24 j 06:25	6° <del>15</del> '58	15°09'37	opposition	-3304 Oct 03 j 08:47	15° <del>15</del> '06	-14°-32'-35
max. Earth dist.	-3312 Mar 24 j 16:40	6° <del>15</del> '58	49.85247 AU	min. Earth dist.	-3304 Oct 03 j 09:02	15° <del>15</del> '06	47.59689 AU
retrograde	-3312 Jul 05 j 00:14	8° <del>15</del> '27	'39	direct	-3304 Dec 23 j 19:54	14° <del>15</del> '07	11
opposition	-3312 Sep 25 j 21:31	7° <del>15</del> '27	-15°-43'-10				
min. Earth dist.	-3312 Sep 25 j 13:06	7° <del>15</del> '28	47.91269 AU	conjunction	-3303 Apr 02 j 10:48	15° <del>15</del> '34	-13°-53'00
direct	-3312 Dec 16 j 04:49	6° <del>15</del> '28	'40	minimum elong	-3303 Apr 02 j 11:00	15° <del>15</del> '34	13°53'02
				max. Earth dist.	-3303 Apr 02 j 09:50	15° <del>15</del> '34	49.50852 AU
conjunction	-3311 Mar 25 j 11:59	7° <del>15</del> '55	-15°-2'-4	retrograde	-3303 Jul 14 j 02:34	17° <del>15</del> '04	01
minimum elong	-3311 Mar 25 j 12:09	7° <del>15</del> '55	15°02'08	opposition	-3303 Oct 04 j 13:19	16° <del>15</del> '04	-14°-22'-37
max. Earth dist.	-3311 Mar 25 j 21:40	7° <del>15</del> '56	49.82809 AU	min. Earth dist.	-3303 Oct 04 j 14:22	16° <del>15</del> '04	47.54015 AU



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 7

Attention, astronomical year style is used: The year -3303 in astronomical counting style is the year 3304 BCE in historical counting style.

direct	-3303 Dec 24 j 21:31	15° <del>✕</del> 04'57		minimum elong	-3294 Apr 11 j 18:33	24° <del>✕</del> 16'56	12°17'01
				max. Earth dist.	-3294 Apr 11 j 05:37	24° <del>✕</del> 16'12	48.82230 AU
conjunction	-3302 Apr 03 j 16:58	16° <del>✕</del> 32'17	-13°-43'-17	retrograde	-3294 Jul 22 j 23:12	25° <del>✕</del> 47'02	
minimum elong	-3302 Apr 03 j 17:10	16° <del>✕</del> 32'18	13°43'20	opposition	-3294 Oct 13 j 06:38	24° <del>✕</del> 47'02	-12°-42'00
max. Earth dist.	-3302 Apr 03 j 14:25	16° <del>✕</del> 32'09	49.45042 AU	min. Earth dist.	-3294 Oct 13 j 19:11	24° <del>✕</del> 46'25	46.82255 AU
retrograde	-3302 Jul 15 j 06:56	18° <del>✕</del> 01'56		direct	-3293 Jan 02 j 23:26	23° <del>✕</del> 47'03	
opposition	-3302 Oct 05 j 17:53	17° <del>✕</del> 02'15	-14°-12'-25	max. Earth dist.	-3293 Apr 12 j 10:01	25° <del>✕</del> 14'31	48.72892 AU
min. Earth dist.	-3302 Oct 05 j 21:30	17° <del>✕</del> 02'05	47.47793 AU				
direct	-3302 Dec 26 j 03:10	16° <del>✕</del> 02'50		conjunction	-3293 Apr 13 j 00:44	25° <del>✕</del> 15'22	-12°-5'-4
				minimum elong	-3293 Apr 13 j 00:58	25° <del>✕</del> 15'22	12°05'06
conjunction	-3301 Apr 04 j 23:14	17° <del>✕</del> 30'16	-13°-33'-20	retrograde	-3293 Jul 24 j 08:31	26° <del>✕</del> 45'35	
minimum elong	-3301 Apr 04 j 23:27	17° <del>✕</del> 30'16	13°33'22	opposition	-3293 Oct 14 j 11:23	25° <del>✕</del> 45'33	-12°-29'-30
max. Earth dist.	-3301 Apr 04 j 19:28	17° <del>✕</del> 30'03	49.38696 AU	min. Earth dist.	-3293 Oct 15 j 00:35	25° <del>✕</del> 44'55	46.72591 AU
retrograde	-3301 Jul 16 j 09:03	18° <del>✕</del> 59'56		direct	-3292 Jan 04 j 01:06	24° <del>✕</del> 45'31	
opposition	-3301 Oct 06 j 22:26	18° <del>✕</del> 00'15	-14°-2'00				
min. Earth dist.	-3301 Oct 07 j 02:39	18° <del>✕</del> 00'02	47.41023 AU	conjunction	-3292 Apr 13 j 07:11	26° <del>✕</del> 14'00	-11°-52'-53
direct	-3301 Dec 27 j 11:38	17° <del>✕</del> 00'46		minimum elong	-3292 Apr 13 j 07:23	26° <del>✕</del> 14'01	11°52'54
				max. Earth dist.	-3292 Apr 12 j 15:19	26° <del>✕</del> 13'06	48.63183 AU
conjunction	-3300 Apr 05 j 05:14	18° <del>✕</del> 28'17	-13°-23'-9	retrograde	-3292 Jul 24 j 15:17	27° <del>✕</del> 44'21	
minimum elong	-3300 Apr 05 j 05:27	18° <del>✕</del> 28'18	13°23'13	opposition	-3292 Oct 14 j 16:18	26° <del>✕</del> 44'18	-12°-16'-45
max. Earth dist.	-3300 Apr 04 j 22:48	18° <del>✕</del> 27'55	49.31809 AU	min. Earth dist.	-3292 Oct 15 j 07:43	26° <del>✕</del> 43'33	46.62526 AU
retrograde	-3300 Jul 16 j 14:38	19° <del>✕</del> 58'00		direct	-3291 Jan 04 j 05:08	25° <del>✕</del> 44'11	
opposition	-3300 Oct 07 j 03:01	18° <del>✕</del> 58'16	-13°-51'-21				
min. Earth dist.	-3300 Oct 07 j 09:11	18° <del>✕</del> 57'59	47.33747 AU	conjunction	-3291 Apr 14 j 13:49	27° <del>✕</del> 12'52	-11°-40'-27
direct	-3300 Dec 27 j 16:48	17° <del>✕</del> 58'44		minimum elong	-3291 Apr 14 j 14:02	27° <del>✕</del> 12'53	11°40'29
				max. Earth dist.	-3291 Apr 13 j 20:56	27° <del>✕</del> 11'54	48.53059 AU
conjunction	-3299 Apr 06 j 11:26	19° <del>✕</del> 26'19	-13°-12'-45	retrograde	-3291 Jul 25 j 19:09	28° <del>✕</del> 43'21	
minimum elong	-3299 Apr 06 j 11:39	19° <del>✕</del> 26'20	13°12'48	opposition	-3291 Oct 15 j 21:08	27° <del>✕</del> 43'15	-12°-3'-44
max. Earth dist.	-3299 Apr 06 j 04:36	19° <del>✕</del> 25'56	49.24444 AU	min. Earth dist.	-3291 Oct 16 j 13:04	27° <del>✕</del> 42'29	46.52007 AU
retrograde	-3299 Jul 17 j 19:57	20° <del>✕</del> 56'05		direct	-3290 Jan 05 j 12:53	26° <del>✕</del> 43'04	
opposition	-3299 Oct 08 j 07:31	19° <del>✕</del> 56'19	-13°-40'-27				
min. Earth dist.	-3299 Oct 08 j 14:57	19° <del>✕</del> 55'57	47.26012 AU	conjunction	-3290 Apr 15 j 20:29	28° <del>✕</del> 11'57	-11°-27'-46
direct	-3299 Dec 28 j 21:51	18° <del>✕</del> 56'42		minimum elong	-3290 Apr 15 j 20:41	28° <del>✕</del> 11'57	11°27'47
				max. Earth dist.	-3290 Apr 15 j 00:53	28° <del>✕</del> 10'49	48.42443 AU
conjunction	-3298 Apr 07 j 17:30	20° <del>✕</del> 24'22	-13°-2'-7	retrograde	-3290 Jul 27 j 00:33	29° <del>✕</del> 42'34	
minimum elong	-3298 Apr 07 j 17:42	20° <del>✕</del> 24'23	13°02'09	opposition	-3290 Oct 17 j 02:15	28° <del>✕</del> 42'25	-11°-50'-29
max. Earth dist.	-3298 Apr 07 j 08:37	20° <del>✕</del> 23'52	49.16662 AU	min. Earth dist.	-3290 Oct 17 j 20:17	28° <del>✕</del> 41'32	46.40982 AU
retrograde	-3298 Jul 19 j 04:03	21° <del>✕</del> 54'10		direct	-3289 Jan 06 j 19:06	27° <del>✕</del> 42'08	
opposition	-3298 Oct 09 j 12:03	20° <del>✕</del> 54'21	-13°-29'-18	max. Earth dist.	-3289 Apr 16 j 07:12	29° <del>✕</del> 10'02	48.31308 AU
min. Earth dist.	-3298 Oct 09 j 20:10	20° <del>✕</del> 53'57	47.17890 AU				
direct	-3298 Dec 30 j 00:10	19° <del>✕</del> 54'39		conjunction	-3289 Apr 17 j 03:26	29° <del>✕</del> 11'12	-11°-14'-52
				minimum elong	-3289 Apr 17 j 03:38	29° <del>✕</del> 11'13	11°14'53
conjunction	-3297 Apr 08 j 23:43	21° <del>✕</del> 22'25	-12°-51'-13		-3289 May 24 j 07:17	0° <del>☿</del>	
minimum elong	-3297 Apr 08 j 23:57	21° <del>✕</del> 22'26	12°51'15	retrograde	-3289 Jul 28 j 05:46	0° <del>☿</del> 41'58	
max. Earth dist.	-3297 Apr 08 j 13:40	21° <del>✕</del> 21'51	49.08499 AU		-3289 Oct 02 j 08:01	30° <del>♊</del>	
retrograde	-3297 Jul 20 j 09:49	22° <del>✕</del> 52'16		opposition	-3289 Oct 18 j 07:18	29° <del>✕</del> 41'44	-11°-36'-58
opposition	-3297 Oct 10 j 16:37	21° <del>✕</del> 52'24	-13°-17'-53	min. Earth dist.	-3289 Oct 19 j 02:41	29° <del>✕</del> 40'48	46.29428 AU
min. Earth dist.	-3297 Oct 11 j 02:40	21° <del>✕</del> 51'55	47.09417 AU	direct	-3288 Jan 08 j 01:15	28° <del>✕</del> 41'22	
direct	-3297 Dec 31 j 05:14	20° <del>✕</del> 52'37			-3288 Apr 09 j 17:56	0° <del>☿</del>	
				max. Earth dist.	-3288 Apr 16 j 11:39	0° <del>☿</del> 09'18	48.19676 AU
conjunction	-3296 Apr 09 j 05:57	22° <del>✕</del> 20'31	-12°-40'-5				
minimum elong	-3296 Apr 09 j 06:09	22° <del>✕</del> 20'31	12°40'06	conjunction	-3288 Apr 17 j 10:14	0° <del>☿</del> 10'37	-11°-1'-43
max. Earth dist.	-3296 Apr 08 j 19:16	22° <del>✕</del> 19'54	49.00029 AU	minimum elong	-3288 Apr 17 j 10:27	0° <del>☿</del> 10'37	11°01'44
retrograde	-3296 Jul 20 j 12:56	23° <del>✕</del> 50'25		retrograde	-3288 Jul 28 j 14:18	1° <del>☿</del> 41'31	
opposition	-3296 Oct 10 j 21:13	22° <del>✕</del> 50'30	-13°-6'-12	opposition	-3288 Oct 18 j 12:26	0° <del>☿</del> 41'13	-11°-23'-13
min. Earth dist.	-3296 Oct 11 j 07:14	22° <del>✕</del> 50'01	47.00646 AU	min. Earth dist.	-3288 Oct 19 j 08:46	0° <del>☿</del> 40'14	46.17404 AU
direct	-3296 Dec 31 j 12:18	21° <del>✕</del> 50'38			-3288 Nov 26 j 10:16	30° <del>♊</del>	
				direct	-3287 Jan 08 j 04:25	29° <del>✕</del> 40'43	
conjunction	-3295 Apr 10 j 11:56	23° <del>✕</del> 18'39	-12°-28'-40		-3287 Feb 19 j 18:05	0° <del>☿</del>	
minimum elong	-3295 Apr 10 j 12:10	23° <del>✕</del> 18'40	12°28'42				
max. Earth dist.	-3295 Apr 09 j 23:19	23° <del>✕</del> 17'56	48.91268 AU	conjunction	-3287 Apr 18 j 17:01	1° <del>☿</del> 10'10	-10°-48'-20
retrograde	-3295 Jul 21 j 17:54	24° <del>✕</del> 48'40		minimum elong	-3287 Apr 18 j 17:13	1° <del>☿</del> 10'11	10°48'21
opposition	-3295 Oct 12 j 01:59	23° <del>✕</del> 48'41	-12°-54'-14	max. Earth dist.	-3287 Apr 17 j 17:07	1° <del>☿</del> 08'47	48.07573 AU
min. Earth dist.	-3295 Oct 12 j 13:35	23° <del>✕</del> 48'08	46.91600 AU	retrograde	-3287 Jul 29 j 21:17	2° <del>☿</del> 41'13	
direct	-3294 Jan 01 j 17:50	22° <del>✕</del> 48'46		opposition	-3287 Oct 19 j 17:43	1° <del>☿</del> 40'49	-11°-9'-12
				min. Earth dist.	-3287 Oct 20 j 16:07	1° <del>☿</del> 39'44	46.04936 AU
conjunction	-3294 Apr 11 j 18:21	24° <del>✕</del> 16'55	-12°-17'00	direct	-3286 Jan 09 j 09:43	0° <del>☿</del> 40'13	



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Attention, astronomical year style is used: The year -3286 in astronomical counting style is the year 3287 BCE in historical counting style.

max. Earth dist.	-3286 Apr 18 j 23:18	2°V08'26	47.95073 AU	minimum elong	-3278 Apr 28 j 11:32	10°V17'01	8°35'55
				retrograde	-3278 Aug 08 j 09:41	11°V50'04	
conjunction	-3286 Apr 20 j 00:02	2°V09'52	-10°-34'-41	opposition	-3278 Oct 28 j 20:25	10°V48'57	-8°-50'-30
minimum elong	-3286 Apr 20 j 00:15	2°V09'53	10°34'42	min. Earth dist.	-3278 Oct 30 j 04:17	10°V47'22	44.78484 AU
retrograde	-3286 Jul 31 j 02:19	3°V41'04		direct	-3277 Jan 18 j 15:43	9°V47'17	
opposition	-3286 Oct 20 j 22:48	2°V40'35	-10°-54'-56	max. Earth dist.	-3277 Apr 28 j 06:46	11°V17'21	46.68402 AU
min. Earth dist.	-3286 Oct 21 j 21:25	2°V39'29	45.92094 AU				
direct	-3285 Jan 10 j 16:57	1°V39'50		conjunction	-3277 Apr 29 j 19:38	11°V19'32	-8°-19'-52
max. Earth dist.	-3285 Apr 20 j 04:08	3°V08'10	47.82213 AU	minimum elong	-3277 Apr 29 j 19:50	11°V19'33	8°19'51
				retrograde	-3277 Aug 09 j 18:58	12°V52'52	
conjunction	-3285 Apr 21 j 07:03	3°V09'44	-10°-20'-47	opposition	-3277 Oct 30 j 02:53	11°V51'37	-8°-33'-43
minimum elong	-3285 Apr 21 j 07:14	3°V09'44	10°20'48	min. Earth dist.	-3277 Oct 31 j 12:49	11°V49'56	44.62478 AU
retrograde	-3285 Aug 01 j 07:58	4°V41'06		direct	-3276 Jan 19 j 20:49	10°V49'48	
opposition	-3285 Oct 22 j 04:11	3°V40'32	-10°-40'-22	max. Earth dist.	-3276 Apr 28 j 13:41	12°V20'06	46.52305 AU
min. Earth dist.	-3285 Oct 23 j 04:37	3°V39'20	45.78932 AU				
direct	-3284 Jan 11 j 23:11	2°V39'40		conjunction	-3276 Apr 30 j 03:48	12°V22'22	-8°-3'-34
max. Earth dist.	-3284 Apr 20 j 11:10	4°V08'13	47.69054 AU	minimum elong	-3276 Apr 30 j 03:59	12°V22'23	8°03'35
				retrograde	-3276 Aug 10 j 04:11	13°V55'58	
conjunction	-3284 Apr 21 j 14:06	4°V09'47	-10°-6'-37	opposition	-3276 Oct 30 j 09:15	12°V54'35	-8°-16'-38
minimum elong	-3284 Apr 21 j 14:18	4°V09'48	10°06'38	min. Earth dist.	-3276 Oct 31 j 19:38	12°V52'52	44.45999 AU
retrograde	-3284 Aug 01 j 12:44	5°V41'22		direct	-3275 Jan 20 j 03:28	11°V52'35	
opposition	-3284 Oct 22 j 09:37	4°V40'42	-10°-25'-32	max. Earth dist.	-3275 Apr 29 j 19:42	13°V23'05	46.35743 AU
min. Earth dist.	-3284 Oct 23 j 10:37	4°V39'28	45.65483 AU				
direct	-3283 Jan 12 j 06:14	3°V39'44		conjunction	-3275 May 01 j 12:10	13°V25'29	-7°-47'-1
				minimum elong	-3275 May 01 j 12:20	13°V25'30	7°47'00
conjunction	-3283 Apr 22 j 21:11	5°V10'06	-9°-52'-11	retrograde	-3275 Aug 11 j 11:14	14°V59'21	
minimum elong	-3283 Apr 22 j 21:22	5°V10'06	9°52'11	opposition	-3275 Oct 31 j 15:47	13°V57'49	-7°-59'-17
max. Earth dist.	-3283 Apr 21 j 16:22	5°V08'25	47.55641 AU	min. Earth dist.	-3275 Nov 02 j 04:23	13°V55'59	44.29093 AU
retrograde	-3283 Aug 02 j 22:33	6°V41'53		direct	-3274 Jan 21 j 11:00	12°V55'37	
opposition	-3283 Oct 23 j 15:02	5°V41'08	-10°-10'-24	max. Earth dist.	-3274 May 01 j 03:56	14°V26'25	46.18776 AU
min. Earth dist.	-3283 Oct 24 j 16:35	5°V39'53	45.51797 AU				
direct	-3282 Jan 13 j 08:29	4°V40'03		conjunction	-3274 May 02 j 20:47	14°V28'52	-7°-30'-11
max. Earth dist.	-3282 Apr 22 j 22:56	6°V08'59	47.41972 AU	minimum elong	-3274 May 02 j 20:57	14°V28'52	7°30'11
				retrograde	-3274 Aug 12 j 15:37	16°V03'00	
conjunction	-3282 Apr 24 j 04:32	6°V10'42	-9°-37'-28	opposition	-3274 Nov 01 j 22:27	15°V01'19	-7°-41'-39
minimum elong	-3282 Apr 24 j 04:44	6°V10'43	9°37'28	min. Earth dist.	-3274 Nov 03 j 11:42	14°V59'26	44.11800 AU
retrograde	-3282 Aug 04 j 07:28	7°V42'44		direct	-3273 Jan 22 j 20:56	13°V58'55	
opposition	-3282 Oct 24 j 20:45	6°V41'55	-9°-54'-59	max. Earth dist.	-3273 May 02 j 10:19	15°V29'56	46.01453 AU
min. Earth dist.	-3282 Oct 26 j 00:06	6°V40'34	45.37844 AU				
direct	-3281 Jan 14 j 11:54	5°V40'44		conjunction	-3273 May 04 j 05:21	15°V32'31	-7°-13'-5
max. Earth dist.	-3281 Apr 24 j 05:38	7°V09'54	47.28039 AU	minimum elong	-3273 May 04 j 05:31	15°V32'32	7°13'04
				retrograde	-3273 Aug 14 j 00:19	17°V06'57	
conjunction	-3281 Apr 25 j 12:02	7°V11'41	-9°-22'-28	opposition	-3273 Nov 03 j 05:11	16°V05'06	-7°-23'-43
minimum elong	-3281 Apr 25 j 12:13	7°V11'42	9°22'28	min. Earth dist.	-3273 Nov 04 j 19:25	16°V03'11	43.94192 AU
retrograde	-3281 Aug 05 j 13:12	8°V43'56		direct	-3272 Jan 24 j 02:46	15°V02'31	
opposition	-3281 Oct 26 j 02:21	7°V43'04	-9°-39'-17	max. Earth dist.	-3272 May 02 j 18:31	16°V33'51	45.83824 AU
min. Earth dist.	-3281 Oct 27 j 05:50	7°V41'43	45.23601 AU				
direct	-3280 Jan 15 j 19:52	6°V41'46		conjunction	-3272 May 04 j 14:10	16°V36'28	-6°-55'-43
max. Earth dist.	-3280 Apr 24 j 11:00	8°V11'08	47.13776 AU	minimum elong	-3272 May 04 j 14:20	16°V36'29	6°55'42
				retrograde	-3272 Aug 14 j 09:29	18°V11'14	
conjunction	-3280 Apr 25 j 19:36	8°V13'03	-9°-7'-13	opposition	-3272 Nov 03 j 12:15	17°V09'13	-7°-5'-29
minimum elong	-3280 Apr 25 j 19:48	8°V13'04	9°07'13	min. Earth dist.	-3272 Nov 05 j 04:02	17°V07'13	43.76306 AU
retrograde	-3280 Aug 05 j 19:03	9°V45'34		direct	-3271 Jan 24 j 08:09	16°V06'27	
opposition	-3280 Oct 26 j 08:17	8°V44'38	-9°-23'-18	max. Earth dist.	-3271 May 04 j 02:26	17°V38'06	45.65952 AU
min. Earth dist.	-3280 Oct 27 j 13:47	8°V43'10	45.09010 AU				
direct	-3279 Jan 16 j 03:24	7°V43'14		conjunction	-3271 May 05 j 22:57	17°V40'48	-6°-38'-3
max. Earth dist.	-3279 Apr 25 j 18:28	9°V12'54	46.99125 AU	minimum elong	-3271 May 05 j 23:07	17°V40'48	6°38'02
				retrograde	-3271 Aug 15 j 18:56	19°V15'54	
conjunction	-3279 Apr 27 j 03:22	9°V14'50	-8°-51'-41	opposition	-3271 Nov 04 j 19:23	18°V13'44	-6°-46'-56
minimum elong	-3279 Apr 27 j 03:33	9°V14'51	8°51'40	min. Earth dist.	-3271 Nov 06 j 11:05	18°V11'44	43.58185 AU
retrograde	-3279 Aug 07 j 00:28	10°V47'38		direct	-3270 Jan 25 j 15:16	17°V10'46	
opposition	-3279 Oct 27 j 14:21	9°V46'36	-9°-7'-2	max. Earth dist.	-3270 May 05 j 09:40	18°V42'45	45.47833 AU
min. Earth dist.	-3279 Oct 28 j 20:53	9°V45'05	44.93982 AU				
direct	-3278 Jan 17 j 11:17	8°V45'05		conjunction	-3270 May 07 j 08:05	18°V45'34	-6°-20'-6
max. Earth dist.	-3278 Apr 26 j 23:54	10°V14'54	46.84016 AU	minimum elong	-3270 May 07 j 08:14	18°V45'34	6°20'05
				retrograde	-3270 Aug 17 j 03:46	20°V21'01	
conjunction	-3278 Apr 28 j 11:21	10°V17'00	-8°-35'-54	opposition	-3270 Nov 06 j 02:42	19°V18'43	-6°-28'-6



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Attention, astronomical year style is used: The year -3270 in astronomical counting style is the year 3271 BCE in historical counting style.

min. Earth dist.	-3270 Nov 07 j 20:16	19° $\Upsilon$ 16'37	43.39829 AU	conjunction	-3261 May 18 j 04:41	28° $\Upsilon$ 54'14	-3°-25'-50
direct	-3269 Jan 26 j 23:27	18° $\Upsilon$ 15'35		minimum elong	-3261 May 18 j 04:46	28° $\Upsilon$ 54'14	3°25'48
max. Earth dist.	-3269 May 06 j 19:09	19° $\Upsilon$ 48'00	45.29472 AU		-3261 Jul 04 j 07:03	0° $\mathcal{B}$	
				retrograde	-3261 Aug 27 j 20:14	0° $\mathcal{B}$ 33'42	
conjunction	-3269 May 08 j 17:32	19° $\Upsilon$ 50'50	-6°-1'-51		-3261 Oct 22 j 03:53	30° $\mathcal{R}\Upsilon$	
minimum elong	-3269 May 08 j 17:41	19° $\Upsilon$ 50'51	6°01'51	opposition	-3261 Nov 16 j 06:11	29° $\Upsilon$ 29'49	-3°-24'-57
retrograde	-3269 Aug 18 j 10:28	21° $\Upsilon$ 26'41		min. Earth dist.	-3261 Nov 18 j 09:57	29° $\Upsilon$ 27'07	41.58320 AU
opposition	-3269 Nov 07 j 10:16	20° $\Upsilon$ 24'16	-6°-8'-57	direct	-3260 Feb 06 j 02:54	28° $\Upsilon$ 24'41	
min. Earth dist.	-3269 Nov 09 j 04:15	20° $\Upsilon$ 22'08	43.21205 AU		-3260 May 15 j 14:48	0° $\mathcal{B}$	
direct	-3268 Jan 28 j 09:24	19° $\Upsilon$ 20'58		max. Earth dist.	-3260 May 16 j 04:16	0° $\mathcal{B}$ 00'51	43.47193 AU
max. Earth dist.	-3268 May 07 j 02:18	20° $\Upsilon$ 53'42	45.10822 AU				
				conjunction	-3260 May 18 j 15:55	0° $\mathcal{B}$ 04'38	-3°-5'-4
conjunction	-3268 May 09 j 02:52	20° $\Upsilon$ 56'41	-5°-43'-20	minimum elong	-3260 May 18 j 16:01	0° $\mathcal{B}$ 04'39	3°05'01
minimum elong	-3268 May 09 j 03:01	20° $\Upsilon$ 56'41	5°43'19	retrograde	-3260 Aug 28 j 08:58	1° $\mathcal{B}$ 44'37	
retrograde	-3268 Aug 18 j 20:27	22° $\Upsilon$ 32'58		opposition	-3260 Nov 16 j 15:48	0° $\mathcal{B}$ 40'30	-3°-3'-4
opposition	-3268 Nov 07 j 17:58	21° $\Upsilon$ 30'25	-5°-49'-30	min. Earth dist.	-3260 Nov 18 j 21:16	0° $\mathcal{B}$ 37'42	41.36471 AU
min. Earth dist.	-3268 Nov 09 j 13:16	21° $\Upsilon$ 28'12	43.02277 AU		-3260 Dec 21 j 08:16	30° $\mathcal{R}\Upsilon$	
direct	-3267 Jan 28 j 15:50	20° $\Upsilon$ 26'56		direct	-3259 Feb 06 j 11:59	29° $\Upsilon$ 35'05	
max. Earth dist.	-3267 May 08 j 11:21	22° $\Upsilon$ 00'07	44.91812 AU		-3259 Mar 25 j 09:02	0° $\mathcal{B}$	
				max. Earth dist.	-3259 May 17 j 15:56	1° $\mathcal{B}$ 11'50	43.25326 AU
conjunction	-3267 May 10 j 12:46	22° $\Upsilon$ 03'09	-5°-24'-32				
minimum elong	-3267 May 10 j 12:54	22° $\Upsilon$ 03'10	5°24'31	conjunction	-3259 May 20 j 03:34	1° $\mathcal{B}$ 15'38	-2°-44'00
retrograde	-3267 Aug 20 j 06:21	23° $\Upsilon$ 39'53		minimum elong	-3259 May 20 j 03:39	1° $\mathcal{B}$ 15'39	2°43'58
opposition	-3267 Nov 09 j 01:54	22° $\Upsilon$ 37'11	-5°-29'-45	retrograde	-3259 Aug 29 j 20:27	2° $\mathcal{B}$ 56'07	
min. Earth dist.	-3267 Nov 10 j 22:57	22° $\Upsilon$ 34'53	42.82958 AU	opposition	-3259 Nov 18 j 01:28	1° $\mathcal{B}$ 51'47	-2°-40'-53
direct	-3266 Jan 29 j 22:39	21° $\Upsilon$ 33'32		min. Earth dist.	-3259 Nov 20 j 06:48	1° $\mathcal{B}$ 48'58	41.14458 AU
max. Earth dist.	-3266 May 09 j 19:54	23° $\Upsilon$ 07'07	44.72396 AU	direct	-3258 Feb 07 j 23:46	0° $\mathcal{B}$ 46'05	
				max. Earth dist.	-3258 May 19 j 01:48	2° $\mathcal{B}$ 23'20	43.03298 AU
conjunction	-3266 May 11 j 22:53	23° $\Upsilon$ 10'15	-5°-5'-27				
minimum elong	-3266 May 11 j 23:00	23° $\Upsilon$ 10'16	5°05'25	conjunction	-3258 May 21 j 15:28	2° $\mathcal{B}$ 27'17	-2°-22'-39
retrograde	-3266 Aug 21 j 19:00	24° $\Upsilon$ 47'25		minimum elong	-3258 May 21 j 15:33	2° $\mathcal{B}$ 27'18	2°22'36
opposition	-3266 Nov 10 j 10:03	23° $\Upsilon$ 44'34	-5°-9'-42	retrograde	-3258 Aug 31 j 07:56	4° $\mathcal{B}$ 08'20	
min. Earth dist.	-3266 Nov 12 j 07:41	23° $\Upsilon$ 42'14	42.63207 AU	opposition	-3258 Nov 19 j 11:34	3° $\mathcal{B}$ 03'46	-2°-18'-23
direct	-3265 Jan 31 j 05:13	22° $\Upsilon$ 40'42		min. Earth dist.	-3258 Nov 21 j 18:18	3° $\mathcal{B}$ 00'52	40.92305 AU
max. Earth dist.	-3265 May 11 j 04:01	24° $\Upsilon$ 14'40	44.52509 AU	direct	-3257 Feb 09 j 09:47	1° $\mathcal{B}$ 57'49	
				max. Earth dist.	-3257 May 20 j 14:06	3° $\mathcal{B}$ 35'40	42.81110 AU
conjunction	-3265 May 13 j 09:14	24° $\Upsilon$ 17'58	-4°-46'-5				
minimum elong	-3265 May 13 j 09:21	24° $\Upsilon$ 17'58	4°46'04	conjunction	-3257 May 23 j 03:45	3° $\mathcal{B}$ 39'40	-2°-1'-1
retrograde	-3265 Aug 23 j 06:00	25° $\Upsilon$ 55'34		minimum elong	-3257 May 23 j 03:49	3° $\mathcal{B}$ 39'40	2°00'58
opposition	-3265 Nov 11 j 18:32	24° $\Upsilon$ 52'33	-4°-49'-21	retrograde	-3257 Sep 01 j 16:45	5° $\mathcal{B}$ 21'17	
min. Earth dist.	-3265 Nov 13 j 18:34	24° $\Upsilon$ 50'05	42.42998 AU	opposition	-3257 Nov 20 j 21:57	4° $\mathcal{B}$ 16'31	-1°-55'-35
direct	-3264 Feb 01 j 13:19	23° $\Upsilon$ 48'27		min. Earth dist.	-3257 Nov 23 j 05:25	4° $\mathcal{B}$ 13'34	40.69980 AU
max. Earth dist.	-3264 May 11 j 14:02	25° $\Upsilon$ 22'53	44.32180 AU	direct	-3256 Feb 10 j 21:45	3° $\mathcal{B}$ 10'18	
				max. Earth dist.	-3256 May 21 j 01:04	4° $\mathcal{B}$ 48'43	42.58746 AU
conjunction	-3264 May 13 j 19:50	25° $\Upsilon$ 26'14	-4°-26'-27				
minimum elong	-3264 May 13 j 19:57	25° $\Upsilon$ 26'15	4°26'24	conjunction	-3256 May 23 j 16:13	4° $\mathcal{B}$ 52'50	-1°-39'-5
retrograde	-3264 Aug 23 j 13:18	27° $\Upsilon$ 04'17		minimum elong	-3256 May 23 j 16:16	4° $\mathcal{B}$ 52'50	1°39'02
opposition	-3264 Nov 12 j 03:08	26° $\Upsilon$ 01'04	-4°-28'-42	retrograde	-3256 Sep 02 j 06:14	6° $\mathcal{B}$ 35'05	
min. Earth dist.	-3264 Nov 14 j 03:38	25° $\Upsilon$ 58'34	42.22354 AU	opposition	-3256 Nov 21 j 08:32	5° $\mathcal{B}$ 30'05	-1°-32'-28
direct	-3263 Feb 02 j 01:09	24° $\Upsilon$ 56'44		min. Earth dist.	-3256 Nov 23 j 16:30	5° $\mathcal{B}$ 27'06	40.47466 AU
max. Earth dist.	-3263 May 12 j 22:06	26° $\Upsilon$ 31'31	44.11433 AU	direct	-3255 Feb 11 j 06:06	4° $\mathcal{B}$ 23'36	
				max. Earth dist.	-3255 May 22 j 12:45	6° $\mathcal{B}$ 02'39	42.36128 AU
conjunction	-3263 May 15 j 06:25	26° $\Upsilon$ 35'03	-4°-6'-31				
minimum elong	-3263 May 15 j 06:32	26° $\Upsilon$ 35'03	4°06'30	conjunction	-3255 May 25 j 05:06	6° $\mathcal{B}$ 06'51	-1°-16'-53
retrograde	-3263 Aug 24 j 22:26	28° $\Upsilon$ 13'33		minimum elong	-3255 May 25 j 05:09	6° $\mathcal{B}$ 06'51	1°16'50
opposition	-3263 Nov 13 j 11:57	27° $\Upsilon$ 10'08	-4°-7'-46	retrograde	-3255 Sep 03 j 20:12	7° $\mathcal{B}$ 49'44	
min. Earth dist.	-3263 Nov 15 j 14:02	27° $\Upsilon$ 07'32	42.01327 AU	opposition	-3255 Nov 22 j 19:39	6° $\mathcal{B}$ 44'31	-1°-9'-2
direct	-3262 Feb 03 j 10:42	26° $\Upsilon$ 05'32		min. Earth dist.	-3255 Nov 25 j 05:41	6° $\mathcal{B}$ 41'25	40.24672 AU
max. Earth dist.	-3262 May 14 j 08:41	27° $\Upsilon$ 40'48	43.90306 AU	direct	-3254 Feb 12 j 14:27	5° $\mathcal{B}$ 37'46	
				max. Earth dist.	-3254 May 24 j 01:22	7° $\mathcal{B}$ 17'27	42.13207 AU
conjunction	-3262 May 16 j 17:32	27° $\Upsilon$ 44'23	-3°-46'-19				
minimum elong	-3262 May 16 j 17:38	27° $\Upsilon$ 44'23	3°46'17	conjunction	-3254 May 26 j 18:28	7° $\mathcal{B}$ 21'44	0°-54'-24
retrograde	-3262 Aug 26 j 07:43	29° $\Upsilon$ 23'22		minimum elong	-3254 May 26 j 18:30	7° $\mathcal{B}$ 21'44	0°54'21
opposition	-3262 Nov 14 j 20:57	28° $\Upsilon$ 19'43	-3°-46'-30	retrograde	-3254 Sep 05 j 10:06	9° $\mathcal{B}$ 05'16	
min. Earth dist.	-3262 Nov 17 j 00:26	28° $\Upsilon$ 17'02	41.79953 AU	opposition	-3254 Nov 24 j 06:56	7° $\mathcal{B}$ 59'49	0°-45'-18
direct	-3261 Feb 04 j 19:30	27° $\Upsilon$ 14'51		min. Earth dist.	-3254 Nov 26 j 17:13	7° $\mathcal{B}$ 56'41	40.01554 AU
max. Earth dist.	-3261 May 15 j 18:24	28° $\Upsilon$ 50'33	43.68879 AU	direct	-3253 Feb 14 j 03:08	6° $\mathcal{B}$ 52'46	



# Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 10

Attention, astronomical year style is used: The year -3253 in astronomical counting style is the year 3254 BCE in historical counting style.

max. Earth dist.	-3253 May 25 j 12:35	8°833'02	41.89931 AU	conjunction	-3246 Jun 06 j 17:25	17°852'25	2°15'01
				minimum elong	-3246 Jun 06 j 17:21	17°852'25	2°15'06
conjunction	-3253 May 28 j 08:08	8°837'30	0°-31'-39	retrograde	-3246 Sep 16 j 08:10	19°841'48	
minimum elong	-3253 May 28 j 08:09	8°837'30	0°31'35	opposition	-3246 Dec 04 j 14:59	18°834'02	2°34'57
retrograde	-3253 Sep 07 j 00:35	10°821'41		min. Earth dist.	-3246 Dec 07 j 08:49	18°830'20	38.07294 AU
opposition	-3253 Nov 25 j 18:47	9°815'58	0°-21'-17	direct	-3245 Feb 24 j 11:58	17°824'13	
min. Earth dist.	-3253 Nov 28 j 07:01	9°812'43	39.78093 AU	max. Earth dist.	-3245 Jun 05 j 08:01	19°810'32	39.94756 AU
direct	-3252 Feb 15 j 15:21	8°808'37					
max. Earth dist.	-3252 May 26 j 02:21	9°849'36	41.66303 AU	conjunction	-3245 Jun 08 j 10:12	19°815'44	2°39'48
				minimum elong	-3245 Jun 08 j 10:07	19°815'43	2°39'53
conjunction	-3252 May 28 j 22:03	9°854'06	0°-8'-39	retrograde	-3245 Sep 17 j 23:23	21°805'59	
minimum elong	-3252 May 28 j 22:04	9°854'06	0°08'36	opposition	-3245 Dec 06 j 05:59	19°857'56	3°01'12
behind sun begin	-3252 May 28 j 16:25	9°853'45		min. Earth dist.	-3245 Dec 09 j 00:37	19°854'10	37.82547 AU
behind sun end	-3252 May 29 j 03:43	9°854'28		direct	-3244 Feb 26 j 02:28	18°847'47	
retrograde	-3252 Sep 07 j 12:25	11°838'58		max. Earth dist.	-3244 Jun 06 j 00:03	20°834'58	39.69919 AU
asc. node	-3252 Oct 11 j 22:24	11°824'27					
opposition	-3252 Nov 26 j 06:56	10°832'59	0°03'02	conjunction	-3244 Jun 09 j 03:07	20°840'16	3°04'47
min. Earth dist.	-3252 Nov 28 j 19:55	10°829'40	39.54286 AU	minimum elong	-3244 Jun 09 j 03:01	20°840'16	3°04'52
direct	-3251 Feb 16 j 05:33	9°825'18		retrograde	-3244 Sep 18 j 17:11	22°831'26	
max. Earth dist.	-3251 May 27 j 14:31	11°806'52	41.42350 AU	opposition	-3244 Dec 06 j 21:16	21°823'06	3°27'41
				min. Earth dist.	-3244 Dec 09 j 15:59	21°819'19	37.57751 AU
conjunction	-3251 May 30 j 12:21	11°811'34	0°14'43	direct	-3243 Feb 26 j 15:38	20°812'37	
minimum elong	-3251 May 30 j 12:20	11°811'34	0°14'47	max. Earth dist.	-3243 Jun 07 j 16:33	22°800'42	39.44970 AU
behind sun begin	-3251 May 30 j 10:01	11°811'25					
behind sun end	-3251 May 30 j 14:39	11°811'42		conjunction	-3243 Jun 10 j 20:51	22°806'08	3°29'59
retrograde	-3251 Sep 09 j 02:23	12°857'07		minimum elong	-3243 Jun 10 j 20:44	22°806'07	3°30'05
opposition	-3251 Nov 27 j 19:11	11°850'51	0°27'39	retrograde	-3243 Sep 20 j 12:37	23°858'14	
min. Earth dist.	-3251 Nov 30 j 09:13	11°847'27	39.30194 AU	opposition	-3243 Dec 08 j 13:06	22°849'36	3°54'24
direct	-3250 Feb 17 j 17:00	10°842'49		min. Earth dist.	-3243 Dec 11 j 09:40	22°845'42	37.32830 AU
max. Earth dist.	-3250 May 29 j 04:26	12°825'05	41.18106 AU	direct	-3242 Feb 28 j 04:47	21°838'45	
				max. Earth dist.	-3242 Jun 09 j 10:38	23°827'50	39.19869 AU
conjunction	-3250 Jun 01 j 03:10	12°829'52	0°38'16				
minimum elong	-3250 Jun 01 j 03:09	12°829'52	0°38'19	conjunction	-3242 Jun 12 j 15:08	23°833'20	3°55'23
retrograde	-3250 Sep 10 j 16:19	14°816'08		minimum elong	-3242 Jun 12 j 15:00	23°833'19	3°55'28
opposition	-3250 Nov 29 j 08:03	13°809'34	0°52'33	retrograde	-3242 Sep 22 j 08:29	25°826'22	
min. Earth dist.	-3250 Dec 01 j 23:39	13°806'05	39.05847 AU	opposition	-3242 Dec 10 j 05:31	24°817'26	4°21'20
direct	-3249 Feb 19 j 04:40	12°801'11		min. Earth dist.	-3242 Dec 13 j 02:01	24°813'31	37.07736 AU
max. Earth dist.	-3249 May 30 j 18:44	13°844'12	40.93647 AU	direct	-3241 Mar 01 j 21:11	23°806'13	
				max. Earth dist.	-3241 Jun 11 j 03:14	24°856'10	38.94558 AU
conjunction	-3249 Jun 02 j 18:08	13°849'03	1°02'05				
minimum elong	-3249 Jun 02 j 18:06	13°849'03	1°02'10	conjunction	-3241 Jun 14 j 09:47	25°801'51	4°20'59
	-3249 Jul 19 j 23:40	15°8		minimum elong	-3241 Jun 14 j 09:39	25°801'51	4°21'04
retrograde	-3249 Sep 12 j 09:05	15°836'04		retrograde	-3241 Sep 24 j 04:15	26°855'52	
	-3249 Nov 06 j 16:20	15°8		opposition	-3241 Dec 11 j 22:33	25°846'35	4°48'29
opposition	-3249 Nov 30 j 21:07	14°829'11	1°17'45	min. Earth dist.	-3241 Dec 14 j 20:47	25°842'33	36.82447 AU
min. Earth dist.	-3249 Dec 03 j 12:36	14°825'41	38.81327 AU	direct	-3240 Mar 02 j 13:38	24°834'59	
direct	-3248 Feb 20 j 16:29	13°820'26		max. Earth dist.	-3240 Jun 11 j 22:38	26°825'58	38.69039 AU
	-3248 May 28 j 19:26	15°8					
max. Earth dist.	-3248 May 31 j 08:32	15°804'11	40.69024 AU	conjunction	-3240 Jun 15 j 05:09	26°831'42	4°46'44
				minimum elong	-3240 Jun 15 j 04:59	26°831'42	4°46'49
conjunction	-3248 Jun 03 j 09:29	15°809'10	1°26'09	retrograde	-3240 Sep 24 j 22:13	28°826'41	
minimum elong	-3248 Jun 03 j 09:27	15°809'10	1°26'13	opposition	-3240 Dec 12 j 16:02	27°817'03	5°15'50
retrograde	-3248 Sep 13 j 01:14	16°856'56		min. Earth dist.	-3240 Dec 15 j 14:51	27°812'57	36.56961 AU
opposition	-3248 Dec 01 j 10:41	15°849'45	1°43'13	direct	-3239 Mar 04 j 09:41	26°805'01	
min. Earth dist.	-3248 Dec 04 j 03:51	15°846'09	38.56700 AU	max. Earth dist.	-3239 Jun 13 j 16:29	27°856'55	38.43338 AU
	-3247 Jan 12 j 04:45	15°8					
direct	-3247 Feb 21 j 05:02	14°840'39		conjunction	-3239 Jun 17 j 00:51	28°802'51	5°12'39
	-3247 Apr 02 j 01:06	15°8		minimum elong	-3239 Jun 17 j 00:40	28°802'50	5°12'45
max. Earth dist.	-3247 Jun 02 j 00:39	16°825'15	40.44315 AU	retrograde	-3239 Sep 26 j 18:50	29°858'48	
				opposition	-3239 Dec 14 j 10:02	28°848'48	5°43'21
conjunction	-3247 Jun 05 j 01:15	16°830'16	1°50'28	min. Earth dist.	-3239 Dec 17 j 09:30	28°844'38	36.31325 AU
minimum elong	-3247 Jun 05 j 01:12	16°830'15	1°50'34	direct	-3238 Mar 06 j 03:06	27°836'19	
retrograde	-3247 Sep 14 j 15:58	18°818'49		max. Earth dist.	-3238 Jun 15 j 12:27	29°829'15	38.17475 AU
opposition	-3247 Dec 03 j 00:39	17°811'20	2°08'57				
min. Earth dist.	-3247 Dec 05 j 17:39	17°807'43	38.32006 AU	conjunction	-3238 Jun 18 j 21:17	29°835'16	5°38'43
direct	-3246 Feb 22 j 21:37	16°801'53		minimum elong	-3238 Jun 18 j 21:06	29°835'15	5°38'49
max. Earth dist.	-3246 Jun 03 j 15:02	17°847'15	40.19553 AU		-3238 Jul 02 j 20:08	0°II	



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 11

Attention, astronomical year style is used: The year -3238 in astronomical counting style is the year 3239 BCE in historical counting style.

retrograde	-3238 Sep 28 j 12:55	1°II32'14		opposition	-3230 Dec 29 j 08:04	13°II39'35	9°54'29
opposition	-3238 Dec 16 j 04:39	0°II21'50	6°11'02	min. Earth dist.	-3229 Jan 01 j 10:09	13°II35'00	34.02891 AU
min. Earth dist.	-3238 Dec 19 j 05:28	0°II17'33	36.05570 AU	direct	-3229 Mar 20 j 16:24	12°II23'04	
	-3238 Dec 31 j 22:16	30°R8		max. Earth dist.	-3229 Jul 01 j 02:58	14°II26'51	35.87567 AU
direct	-3237 Mar 07 j 20:46	29°R8'08'54					
	-3237 May 10 j 20:48	0°II		conjunction	-3229 Jul 04 j 14:26	14°II33'36	9°34'52
max. Earth dist.	-3237 Jun 17 j 08:52	1°II02'53	37.91539 AU	minimum elong	-3229 Jul 04 j 14:06	14°II33'34	9°34'59
				retrograde	-3229 Oct 14 j 12:59	16°II41'10	
conjunction	-3237 Jun 20 j 18:05	1°II08'58	6°04'53	opposition	-3229 Dec 31 j 08:54	15°II27'16	10°22'10
minimum elong	-3237 Jun 20 j 17:52	1°II08'57	6°05'00	min. Earth dist.	-3228 Jan 03 j 12:18	15°II22'36	33.78166 AU
retrograde	-3237 Sep 30 j 10:12	3°II06'58		direct	-3228 Mar 21 j 14:08	14°II10'19	
opposition	-3237 Dec 17 j 23:48	1°II56'10	6°38'51	max. Earth dist.	-3228 Jul 02 j 06:23	16°II15'31	35.62612 AU
min. Earth dist.	-3237 Dec 21 j 00:16	1°II51'53	35.79792 AU				
direct	-3236 Mar 08 j 14:54	0°II42'46		conjunction	-3228 Jul 05 j 17:04	16°II22'16	10°00'44
max. Earth dist.	-3236 Jun 18 j 04:59	2°II37'47	37.65583 AU	minimum elong	-3228 Jul 05 j 16:44	16°II22'15	10°00'50
				retrograde	-3228 Oct 15 j 17:05	18°II31'09	
conjunction	-3236 Jun 21 j 15:17	2°II44'00	6°31'09	opposition	-3227 Jan 01 j 10:24	17°II16'51	10°49'42
minimum elong	-3236 Jun 21 j 15:04	2°II43'59	6°31'15	min. Earth dist.	-3227 Jan 04 j 13:14	17°II12'11	33.53528 AU
retrograde	-3236 Oct 01 j 09:01	4°II43'05		direct	-3227 Mar 23 j 16:43	15°II59'26	
opposition	-3236 Dec 18 j 19:37	3°II31'51	7°06'46	max. Earth dist.	-3227 Jul 04 j 08:27	18°II05'55	35.37749 AU
min. Earth dist.	-3236 Dec 21 j 21:28	3°II27'28	35.54054 AU				
direct	-3235 Mar 10 j 08:18	2°II17'59		conjunction	-3227 Jul 07 j 20:30	18°II12'51	10°26'23
max. Earth dist.	-3235 Jun 20 j 03:38	4°II14'12	37.39699 AU	minimum elong	-3227 Jul 07 j 20:08	18°II12'49	10°26'29
				retrograde	-3227 Oct 17 j 23:39	20°II23'02	
conjunction	-3235 Jun 23 j 13:14	4°II20'25	6°57'28	opposition	-3226 Jan 03 j 12:33	19°II08'19	11°16'59
minimum elong	-3235 Jun 23 j 12:59	4°II20'24	6°57'34	min. Earth dist.	-3226 Jan 06 j 16:04	19°II03'34	33.29023 AU
retrograde	-3235 Oct 03 j 07:05	6°II20'35		direct	-3226 Mar 25 j 18:46	17°II50'24	
opposition	-3235 Dec 20 j 15:53	5°II08'57	7°34'44	max. Earth dist.	-3226 Jul 06 j 13:48	19°II58'22	35.13025 AU
min. Earth dist.	-3235 Dec 23 j 17:03	5°II04'35	35.28424 AU				
direct	-3234 Mar 12 j 05:32	3°II54'37		conjunction	-3226 Jul 10 j 00:48	20°II05'17	10°51'46
max. Earth dist.	-3234 Jun 22 j 00:54	5°II51'56	37.13942 AU	minimum elong	-3226 Jul 10 j 00:27	20°II05'15	10°51'53
				retrograde	-3226 Oct 20 j 03:29	22°II16'48	
conjunction	-3234 Jun 25 j 11:44	5°II58'19	7°23'49	opposition	-3225 Jan 05 j 15:43	21°II01'38	11°44'01
minimum elong	-3234 Jun 25 j 11:29	5°II58'17	7°23'55	min. Earth dist.	-3225 Jan 08 j 19:13	20°II56'52	33.04686 AU
retrograde	-3234 Oct 05 j 07:32	7°II59'36		direct	-3225 Mar 27 j 22:21	19°II43'14	
opposition	-3234 Dec 22 j 12:57	6°II47'35	8°02'45	max. Earth dist.	-3225 Jul 08 j 18:00	21°II52'33	34.88512 AU
min. Earth dist.	-3234 Dec 25 j 14:47	6°II43'09	35.02971 AU				
direct	-3233 Mar 14 j 02:07	5°II32'48		conjunction	-3225 Jul 12 j 05:28	21°II59'35	11°16'51
max. Earth dist.	-3233 Jun 24 j 01:01	7°II31'25	36.88359 AU	minimum elong	-3225 Jul 12 j 05:05	21°II59'33	11°16'57
				retrograde	-3225 Oct 22 j 09:09	24°II12'26	
conjunction	-3233 Jun 27 j 10:53	7°II37'47	7°50'10	opposition	-3224 Jan 07 j 19:31	22°II56'50	12°10'41
minimum elong	-3233 Jun 27 j 10:36	7°II37'46	7°50'16	min. Earth dist.	-3224 Jan 10 j 22:30	22°II52'03	32.80612 AU
retrograde	-3233 Oct 07 j 06:09	9°II40'16		direct	-3224 Mar 29 j 01:23	21°II37'55	
opposition	-3233 Dec 24 j 10:44	8°II27'52	8°30'46	max. Earth dist.	-3224 Jul 10 j 00:24	23°II48'42	34.64276 AU
min. Earth dist.	-3233 Dec 27 j 12:36	8°II23'23	34.77703 AU				
direct	-3232 Mar 15 j 00:32	7°II12'39		conjunction	-3224 Jul 13 j 11:05	23°II55'44	11°41'33
max. Earth dist.	-3232 Jun 25 j 00:01	9°II12'29	36.62970 AU	minimum elong	-3224 Jul 13 j 10:42	23°II55'42	11°41'39
				retrograde	-3224 Oct 23 j 13:46	26°II09'57	
conjunction	-3232 Jun 28 j 10:36	9°II18'58	8°16'28	opposition	-3223 Jan 09 j 00:09	24°II53'53	12°36'57
minimum elong	-3232 Jun 28 j 10:19	9°II18'57	8°16'34	min. Earth dist.	-3223 Jan 12 j 03:32	24°II49'02	32.56868 AU
retrograde	-3232 Oct 08 j 07:18	11°II22'40		direct	-3223 Mar 31 j 04:18	23°II34'28	
opposition	-3232 Dec 25 j 08:59	10°II09'54	8°58'44	max. Earth dist.	-3223 Jul 12 j 07:18	25°II46'42	34.40423 AU
min. Earth dist.	-3232 Dec 28 j 10:38	10°II05'25	34.52638 AU				
direct	-3231 Mar 16 j 21:13	8°II54'16		conjunction	-3223 Jul 15 j 17:17	25°II53'45	12°05'48
max. Earth dist.	-3231 Jun 27 j 00:35	10°II55'25	36.37730 AU	minimum elong	-3223 Jul 15 j 16:53	25°II53'43	12°05'54
				retrograde	-3223 Oct 25 j 21:09	28°II09'20	
conjunction	-3231 Jun 30 j 11:11	11°II01'58	8°42'42	opposition	-3222 Jan 11 j 05:36	26°II52'50	13°02'43
minimum elong	-3231 Jun 30 j 10:52	11°II01'56	8°42'49	min. Earth dist.	-3222 Jan 14 j 07:23	26°II48'03	32.33546 AU
retrograde	-3231 Oct 10 j 06:51	13°II06'55		direct	-3222 Apr 02 j 07:54	25°II32'55	
opposition	-3231 Dec 27 j 08:13	11°II53'48	9°26'39	max. Earth dist.	-3222 Jul 14 j 14:42	27°II46'37	34.17012 AU
min. Earth dist.	-3231 Dec 30 j 10:54	11°II49'13	34.27709 AU				
direct	-3230 Mar 18 j 18:15	10°II37'44		conjunction	-3222 Jul 18 j 00:17	27°II53'42	12°29'31
max. Earth dist.	-3230 Jun 29 j 01:57	12°II40'13	36.12611 AU	minimum elong	-3222 Jul 17 j 23:53	27°II53'40	12°29'39
					-3222 Oct 02 j 11:27	0°II	
conjunction	-3230 Jul 02 j 12:24	12°II46'50	9°08'51	retrograde	-3222 Oct 28 j 04:04	0°II10'41	
minimum elong	-3230 Jul 02 j 12:06	12°II46'48	9°08'58				
retrograde	-3230 Oct 12 j 09:26	14°II53'05		opposition	-3221 Jan 13 j 12:06	28°II53'44	13°27'55



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 12

Attention, astronomical year style is used: The year -3221 in astronomical counting style is the year 3222 BCE in historical counting style.

min. Earth dist.	-3221 Jan 16 j 14:08	28° $\Pi$ 48'55	32.10718 AU	min. Earth dist.	-3213 Feb 02 j 17:48	16° $\Theta$ 12'56	30.47514 AU
direct	-3221 Apr 04 j 12:05	27° $\Pi$ 33'20		direct	-3213 Apr 21 j 14:52	14° $\Theta$ 53'45	
max. Earth dist.	-3221 Jul 17 j 00:25	29° $\Pi$ 48'39	33.94141 AU	max. Earth dist.	-3213 Aug 04 j 04:35	17° $\Theta$ 21'17	32.30700 AU
conjunction	-3221 Jul 20 j 08:03	29° $\Pi$ 55'39	12°52'40	conjunction	-3213 Aug 07 j 03:17	17° $\Theta$ 27'58	15°28'20
minimum elong	-3221 Jul 20 j 07:38	29° $\Pi$ 55'36	12°52'46	minimum elong	-3213 Aug 07 j 02:55	17° $\Theta$ 27'56	15°28'26
	-3221 Jul 22 j 09:40	0° $\Theta$		retrograde	-3213 Nov 17 j 20:28	19° $\Theta$ 57'32	
retrograde	-3221 Oct 30 j 13:07	2° $\Theta$ 14'02		opposition	-3212 Feb 02 j 14:58	18° $\Theta$ 37'08	16°36'40
opposition	-3220 Jan 15 j 19:21	0° $\Theta$ 56'40	13°52'27	min. Earth dist.	-3212 Feb 05 j 08:06	18° $\Theta$ 32'41	30.29597 AU
min. Earth dist.	-3220 Jan 18 j 19:32	0° $\Theta$ 51'56	31.88443 AU	direct	-3212 Apr 23 j 03:08	17° $\Theta$ 13'06	
	-3220 Feb 24 j 19:33	30° $\mathbb{R}$ $\Pi$		max. Earth dist.	-3212 Aug 05 j 21:58	19° $\Theta$ 42'10	32.12878 AU
direct	-3220 Apr 05 j 18:46	29° $\Pi$ 35'49		conjunction	-3212 Aug 08 j 18:00	19° $\Theta$ 48'39	15°43'02
	-3220 May 15 j 23:13	0° $\Theta$		minimum elong	-3212 Aug 08 j 17:41	19° $\Theta$ 48'38	15°43'08
max. Earth dist.	-3220 Jul 18 j 08:54	1° $\Theta$ 52'37	33.71831 AU	retrograde	-3212 Nov 19 j 12:02	22° $\Theta$ 19'29	
conjunction	-3220 Jul 21 j 16:27	1° $\Theta$ 59'40	13°15'08	opposition	-3211 Feb 04 j 06:23	20° $\Theta$ 58'43	16°51'58
minimum elong	-3220 Jul 21 j 16:04	1° $\Theta$ 59'38	13°15'15	min. Earth dist.	-3211 Feb 06 j 21:05	20° $\Theta$ 54'25	30.12373 AU
retrograde	-3220 Oct 31 j 23:56	4° $\Theta$ 19'30		direct	-3211 Apr 25 j 18:13	19° $\Theta$ 34'19	
opposition	-3219 Jan 17 j 03:32	3° $\Theta$ 01'43	14°16'16	max. Earth dist.	-3211 Aug 08 j 14:27	22° $\Theta$ 04'43	31.95803 AU
min. Earth dist.	-3219 Jan 20 j 03:34	2° $\Theta$ 56'59	31.66738 AU	conjunction	-3211 Aug 11 j 09:23	22° $\Theta$ 11'09	15°56'23
direct	-3219 Apr 08 j 00:18	1° $\Theta$ 40'27		minimum elong	-3211 Aug 11 j 09:04	22° $\Theta$ 11'07	15°56'29
max. Earth dist.	-3219 Jul 20 j 20:34	3° $\Theta$ 58'55	33.50082 AU	retrograde	-3211 Nov 22 j 05:06	24° $\Theta$ 43'12	
conjunction	-3219 Jul 24 j 01:56	4° $\Theta$ 05'50	13°36'52	opposition	-3210 Feb 06 j 22:36	23° $\Theta$ 22'04	17°05'48
minimum elong	-3219 Jul 24 j 01:31	4° $\Theta$ 05'48	13°36'58	min. Earth dist.	-3210 Feb 09 j 12:06	23° $\Theta$ 17'50	29.95940 AU
retrograde	-3219 Nov 03 j 10:39	6° $\Theta$ 27'06		direct	-3210 Apr 28 j 07:42	21° $\Theta$ 57'19	
opposition	-3218 Jan 19 j 12:33	5° $\Theta$ 08'57	14°39'17	max. Earth dist.	-3210 Aug 11 j 10:00	24° $\Theta$ 29'14	31.79584 AU
min. Earth dist.	-3218 Jan 22 j 11:22	5° $\Theta$ 04'16	31.45571 AU	conjunction	-3210 Aug 14 j 01:28	24° $\Theta$ 35'22	16°08'19
direct	-3218 Apr 10 j 09:20	3° $\Theta$ 47'17		minimum elong	-3210 Aug 14 j 01:12	24° $\Theta$ 35'21	16°08'25
max. Earth dist.	-3218 Jul 23 j 06:48	6° $\Theta$ 07'14	33.28872 AU	retrograde	-3210 Nov 24 j 22:13	27° $\Theta$ 08'37	
conjunction	-3218 Jul 26 j 12:06	6° $\Theta$ 14'13	13°57'49	opposition	-3209 Feb 09 j 15:48	25° $\Theta$ 47'09	17°18'02
minimum elong	-3218 Jul 26 j 11:43	6° $\Theta$ 14'10	13°57'56	min. Earth dist.	-3209 Feb 12 j 02:43	25° $\Theta$ 43'05	29.80371 AU
retrograde	-3218 Nov 06 j 00:36	8° $\Theta$ 36'55		direct	-3209 May 01 j 00:53	24° $\Theta$ 22'07	
opposition	-3217 Jan 21 j 22:38	7° $\Theta$ 18'23	15°01'27	max. Earth dist.	-3209 Aug 14 j 03:53	26° $\Theta$ 55'16	31.64300 AU
min. Earth dist.	-3217 Jan 24 j 20:35	7° $\Theta$ 13'44	31.24938 AU	conjunction	-3209 Aug 16 j 17:53	27° $\Theta$ 01'19	16°18'43
direct	-3217 Apr 12 j 18:42	5° $\Theta$ 56'19		minimum elong	-3209 Aug 16 j 17:37	27° $\Theta$ 01'18	16°18'48
max. Earth dist.	-3217 Jul 25 j 19:53	8° $\Theta$ 17'55	33.08173 AU	retrograde	-3209 Nov 27 j 18:03	29° $\Theta$ 35'42	
conjunction	-3217 Jul 28 j 23:08	8° $\Theta$ 24'46	14°17'55	opposition	-3208 Feb 12 j 09:40	28° $\Theta$ 13'56	17°28'36
minimum elong	-3217 Jul 28 j 22:44	8° $\Theta$ 24'44	14°18'01	min. Earth dist.	-3208 Feb 14 j 18:12	28° $\Theta$ 10'01	29.65753 AU
retrograde	-3217 Nov 08 j 12:07	10° $\Theta$ 48'54		direct	-3208 May 02 j 17:51	26° $\Theta$ 48'38	
opposition	-3216 Jan 24 j 09:47	9° $\Theta$ 30'00	15°22'40	max. Earth dist.	-3208 Aug 16 j 00:56	29° $\Theta$ 23'14	31.50003 AU
min. Earth dist.	-3216 Jan 27 j 07:16	9° $\Theta$ 25'21	31.04799 AU	conjunction	-3208 Aug 18 j 11:10	29° $\Theta$ 28'57	16°27'30
direct	-3216 Apr 14 j 04:55	8° $\Theta$ 07'32		minimum elong	-3208 Aug 18 j 10:58	29° $\Theta$ 28'56	16°27'35
max. Earth dist.	-3216 Jul 27 j 08:18	10° $\Theta$ 30'37	32.87992 AU		-3208 Aug 31 j 16:59	0° $\Omega$	
conjunction	-3216 Jul 30 j 10:57	10° $\Theta$ 37'29	14°37'06	retrograde	-3208 Nov 29 j 11:35	2° $\Omega$ 04'25	
minimum elong	-3216 Jul 30 j 10:34	10° $\Theta$ 37'27	14°37'12	opposition	-3207 Feb 14 j 04:12	0° $\Omega$ 42'24	17°37'24
retrograde	-3216 Nov 10 j 02:05	13° $\Theta$ 03'01		min. Earth dist.	-3207 Feb 16 j 10:42	0° $\Omega$ 38'37	29.52097 AU
opposition	-3215 Jan 25 j 21:32	11° $\Theta$ 43'45	15°42'54		-3207 Mar 12 j 17:20	30° $\mathbb{R}$ $\Theta$	
min. Earth dist.	-3215 Jan 28 j 17:28	11° $\Theta$ 39'11	30.85173 AU	direct	-3207 May 05 j 11:24	29° $\Theta$ 16'53	
direct	-3215 Apr 16 j 15:43	10° $\Theta$ 20'53			-3207 Jun 26 j 01:55	0° $\Omega$	
max. Earth dist.	-3215 Jul 29 j 22:26	12° $\Theta$ 45'30	32.68321 AU	max. Earth dist.	-3207 Aug 18 j 20:30	1° $\Omega$ 52'40	31.36718 AU
conjunction	-3215 Aug 01 j 23:45	12° $\Theta$ 52'19	14°55'16	conjunction	-3207 Aug 21 j 04:54	1° $\Omega$ 58'15	16°34'37
minimum elong	-3215 Aug 01 j 23:22	12° $\Theta$ 52'17	14°55'22	minimum elong	-3207 Aug 21 j 04:42	1° $\Omega$ 58'14	16°34'43
retrograde	-3215 Nov 12 j 15:12	15° $\Theta$ 19'13		retrograde	-3207 Dec 02 j 08:59	4° $\Omega$ 34'45	
opposition	-3214 Jan 28 j 10:33	13° $\Theta$ 59'34	16°02'02	opposition	-3206 Feb 16 j 23:30	3° $\Omega$ 12'31	17°44'23
min. Earth dist.	-3214 Jan 31 j 06:19	13° $\Theta$ 55'00	30.66061 AU	min. Earth dist.	-3206 Feb 19 j 03:01	3° $\Omega$ 08'55	29.39422 AU
direct	-3214 Apr 19 j 02:23	12° $\Theta$ 36'19		direct	-3206 May 08 j 05:53	1° $\Omega$ 46'49	
max. Earth dist.	-3214 Aug 01 j 13:19	15° $\Theta$ 02'26	32.49212 AU	max. Earth dist.	-3206 Aug 21 j 18:22	4° $\Omega$ 23'53	31.24415 AU
conjunction	-3214 Aug 04 j 13:06	15° $\Theta$ 09'10	15°12'23	conjunction	-3206 Aug 23 j 23:10	4° $\Omega$ 29'08	16°40'01
minimum elong	-3214 Aug 04 j 12:46	15° $\Theta$ 09'08	15°12'29	minimum elong	-3206 Aug 23 j 23:03	4° $\Omega$ 29'07	16°40'06
retrograde	-3214 Nov 15 j 06:17	17° $\Theta$ 37'24		retrograde	-3206 Dec 05 j 04:46	7° $\Omega$ 06'36	
opposition	-3213 Jan 31 j 00:17	16° $\Theta$ 17'24	16°19'59	opposition	-3205 Feb 19 j 19:43	5° $\Omega$ 44'09	17°49'29



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 13

Attention, astronomical year style is used: The year -3205 in astronomical counting style is the year 3206 BCE in historical counting style.

min. Earth dist.	-3205 Feb 21 j 21:35	5°04'40"	29.27689 AU	min. Earth dist.	-3197 Mar 14 j 08:34	26°02'29"	28.67505 AU
direct	-3205 May 11 j 01:01	4°01'18"		direct	-3197 Jun 01 j 03:32	25°02'04"	
max. Earth dist.	-3205 Aug 24 j 15:21	6°05'26"	31.13092 AU	max. Earth dist.	-3197 Sep 15 j 08:36	27°04'47"	30.57547 AU
conjunction	-3205 Aug 26 j 17:52	7°02'01"	16°43'38"	conjunction	-3197 Sep 16 j 09:18	27°05'25"	16°05'29"
minimum elong	-3205 Aug 26 j 17:45	7°02'01"	16°43'44"	minimum elong	-3197 Sep 16 j 09:30	27°05'26"	16°05'33"
retrograde	-3205 Dec 08 j 01:58	9°03'39"			-3197 Nov 16 j 14:45	0°00'00"	
opposition	-3204 Feb 22 j 16:20	8°01'17"	17°52'40"	retrograde	-3197 Dec 28 j 22:41	0°00'31"	15°59'59"
min. Earth dist.	-3204 Feb 24 j 14:44	8°01'35"	29.16892 AU		-3196 Feb 11 j 06:15	30°04'00"	
direct	-3204 May 12 j 21:12	6°05'11"		opposition	-3196 Mar 15 j 05:04	29°02'08"	17°05'12"
max. Earth dist.	-3204 Aug 26 j 13:31	9°03'30"	31.02707 AU	min. Earth dist.	-3196 Mar 16 j 04:37	29°02'06"	28.64698 AU
				direct	-3196 Jun 03 j 02:37	27°04'15"	
conjunction	-3204 Aug 28 j 13:06	9°03'35"	16°45'28"		-3196 Sep 06 j 23:49	0°00'00"	
minimum elong	-3204 Aug 28 j 13:03	9°03'35"	16°45'33"	max. Earth dist.	-3196 Sep 17 j 07:13	0°00'25"	30.55588 AU
retrograde	-3204 Dec 09 j 21:47	12°02'14"					
opposition	-3203 Feb 24 j 13:45	10°05'12"	17°53'53"	conjunction	-3196 Sep 18 j 05:10	0°00'27"	15°52'03"
min. Earth dist.	-3203 Feb 26 j 10:43	10°04'48"	29.06995 AU	minimum elong	-3196 Sep 18 j 05:25	0°00'27"	15°52'05"
direct	-3203 May 15 j 16:29	9°02'25"		retrograde	-3196 Dec 30 j 20:51	3°00'08"	15°58'55"
max. Earth dist.	-3203 Aug 29 j 11:55	12°05'26"	30.93264 AU	opposition	-3195 Mar 18 j 04:15	1°00'45"	16°49'54"
				min. Earth dist.	-3195 Mar 18 j 23:30	1°00'43"	28.63118 AU
conjunction	-3203 Aug 31 j 08:40	12°02'09"	16°45'27"	direct	-3195 Jun 06 j 00:58	0°00'18"	15°58'59"
minimum elong	-3203 Aug 31 j 08:37	12°02'09"	16°45'32"	max. Earth dist.	-3195 Sep 20 j 07:49	3°00'02"	30.54876 AU
retrograde	-3203 Dec 12 j 19:59	14°04'49"					
opposition	-3202 Feb 27 j 11:33	13°02'26"	17°53'08"	conjunction	-3195 Sep 21 j 00:59	3°00'04"	15°36'43"
min. Earth dist.	-3202 Mar 01 j 04:56	13°02'23"	28.97994 AU	minimum elong	-3195 Sep 21 j 01:16	3°00'04"	15°36'46"
direct	-3202 May 18 j 13:57	12°02'00"		retrograde	-3194 Jan 02 j 17:10	5°00'45"	15°53'30"
max. Earth dist.	-3202 Sep 01 j 10:26	14°04'12"	30.84749 AU	opposition	-3194 Mar 21 j 03:33	4°00'21"	16°32'33"
				min. Earth dist.	-3194 Mar 21 j 19:56	4°00'20"	28.62748 AU
conjunction	-3202 Sep 03 j 04:36	14°04'45"	16°43'35"	direct	-3194 Jun 09 j 00:42	2°00'55"	15°55'47"
minimum elong	-3202 Sep 03 j 04:38	14°04'45"	16°43'39"				
	-3202 Sep 09 j 02:24	15°00'00"		conjunction	-3194 Sep 23 j 20:29	5°00'40"	15°19'32"
retrograde	-3202 Dec 15 j 15:44	17°02'26"		minimum elong	-3194 Sep 23 j 20:48	5°00'40"	15°19'34"
opposition	-3201 Mar 02 j 09:59	16°02'02"	17°50'20"	max. Earth dist.	-3194 Sep 23 j 06:15	5°00'39"	30.55408 AU
min. Earth dist.	-3201 Mar 04 j 01:38	16°02'00"	28.89913 AU	retrograde	-3193 Jan 05 j 15:01	8°00'21"	15°58'40"
	-3201 Apr 13 j 03:36	15°00'00"		opposition	-3193 Mar 24 j 02:35	6°00'58"	16°13'15"
direct	-3201 May 21 j 10:02	14°03'36"		min. Earth dist.	-3193 Mar 24 j 14:20	6°00'57"	28.63578 AU
	-3201 Jun 27 j 14:02	15°00'00"		direct	-3193 Jun 11 j 23:47	5°00'32"	15°58'14"
max. Earth dist.	-3201 Sep 04 j 10:03	17°02'18"	30.77205 AU				
conjunction	-3201 Sep 06 j 00:38	17°02'22"	16°39'49"	conjunction	-3193 Sep 26 j 15:45	8°00'16"	15°00'34"
minimum elong	-3201 Sep 06 j 00:40	17°02'22"	16°39'53"	minimum elong	-3193 Sep 26 j 16:05	8°00'16"	15°00'37"
retrograde	-3201 Dec 18 j 12:06	20°02'02"		max. Earth dist.	-3193 Sep 26 j 05:48	8°00'15"	30.57125 AU
opposition	-3200 Mar 04 j 08:37	18°03'39"	17°45'29"	retrograde	-3192 Jan 08 j 10:50	10°00'57"	15°57'18"
min. Earth dist.	-3200 Mar 05 j 20:42	18°03'37"	28.82764 AU	opposition	-3192 Mar 26 j 01:35	9°00'33"	15°52'03"
direct	-3200 May 23 j 09:14	17°02'13"		min. Earth dist.	-3192 Mar 26 j 10:57	9°00'33"	28.65547 AU
max. Earth dist.	-3200 Sep 06 j 08:33	19°05'55"	30.70645 AU	direct	-3192 Jun 13 j 21:56	8°00'08"	15°58'14"
conjunction	-3200 Sep 07 j 20:50	19°05'58"	16°34'08"	conjunction	-3192 Sep 28 j 10:44	10°00'51"	14°39'54"
minimum elong	-3200 Sep 07 j 20:56	19°05'58"	16°34'12"	minimum elong	-3192 Sep 28 j 11:06	10°00'51"	14°39'55"
retrograde	-3200 Dec 20 j 09:23	22°04'40"		max. Earth dist.	-3192 Sep 28 j 03:54	10°00'51"	30.59985 AU
opposition	-3199 Mar 07 j 07:23	21°02'16"	17°38'34"	retrograde	-3191 Jan 10 j 08:22	13°00'32"	15°52'16"
min. Earth dist.	-3199 Mar 08 j 17:05	21°02'14"	28.76607 AU	opposition	-3191 Mar 29 j 00:03	12°00'08"	15°29'02"
direct	-3199 May 26 j 05:38	19°05'01"		min. Earth dist.	-3191 Mar 29 j 05:03	12°00'08"	28.68603 AU
max. Earth dist.	-3199 Sep 09 j 09:05	22°03'24"	30.65141 AU	direct	-3191 Jun 16 j 21:42	10°00'43"	15°53'34"
conjunction	-3199 Sep 10 j 17:09	22°03'36"	16°26'32"	conjunction	-3191 Oct 01 j 05:26	13°00'26"	14°17'37"
minimum elong	-3199 Sep 10 j 17:16	22°03'36"	16°26'36"	minimum elong	-3191 Oct 01 j 05:49	13°00'26"	14°17'39"
retrograde	-3199 Dec 23 j 05:21	25°02'17"		max. Earth dist.	-3191 Oct 01 j 02:10	13°00'26"	30.63915 AU
opposition	-3198 Mar 10 j 06:33	23°05'53"	17°29'33"	retrograde	-3190 Jan 13 j 03:23	16°00'06"	15°56'25"
min. Earth dist.	-3198 Mar 11 j 12:47	23°05'51"	28.71489 AU	opposition	-3190 Mar 31 j 22:35	14°00'43"	15°04'20"
direct	-3198 May 29 j 05:18	22°02'27"		min. Earth dist.	-3190 Apr 01 j 01:14	14°00'43"	28.72707 AU
max. Earth dist.	-3198 Sep 12 j 07:38	25°02'10"	30.60748 AU	direct	-3190 Jun 19 j 19:11	13°00'18"	15°58'08"
conjunction	-3198 Sep 13 j 13:08	25°02'13"	16°16'59"	conjunction	-3190 Oct 03 j 23:38	16°00'00"	13°53'47"
minimum elong	-3198 Sep 13 j 13:19	25°02'13"	16°17'02"	minimum elong	-3190 Oct 04 j 00:01	16°00'00"	13°53'48"
retrograde	-3198 Dec 26 j 02:51	27°05'44"		max. Earth dist.	-3190 Oct 03 j 23:53	16°00'00"	30.68894 AU
opposition	-3197 Mar 13 j 05:49	26°03'11"	17°18'26"	retrograde	-3189 Jan 15 j 21:50	18°00'39"	15°53'33"
				opposition	-3189 Apr 03 j 20:37	17°00'16"	14°38'01"



# Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 14

Attention, astronomical year style is used: The year -3189 in astronomical counting style is the year 3190 BCE in historical counting style.

min. Earth dist.	-3189 Apr 03 j 19:08	17° $\mathring{M}$ 16'36	28.77808 AU	opposition	-3181 Apr 24 j 08:01	6° $\mathring{A}$ 49'26	10°21'09
direct	-3189 Jun 22 j 18:23	15° $\mathring{M}$ 51'43		direct	-3181 Jul 13 j 04:44	5° $\mathring{A}$ 27'15	
conjunction	-3189 Oct 06 j 17:25	18° $\mathring{M}$ 32'50	13°28'31	conjunction	-3181 Oct 25 j 16:38	7° $\mathring{A}$ 58'41	9°25'02
minimum elong	-3189 Oct 06 j 17:50	18° $\mathring{M}$ 32'52	13°28'33	minimum elong	-3181 Oct 25 j 17:01	7° $\mathring{A}$ 58'43	9°25'01
max. Earth dist.	-3189 Oct 06 j 20:28	18° $\mathring{M}$ 33'08	30.74862 AU	max. Earth dist.	-3181 Oct 26 j 22:25	8° $\mathring{A}$ 01'32	31.59279 AU
retrograde	-3188 Jan 18 j 16:27	21° $\mathring{M}$ 11'32		retrograde	-3180 Feb 06 j 16:03	10° $\mathring{A}$ 29'42	
opposition	-3188 Apr 05 j 18:06	19° $\mathring{M}$ 48'37	14°10'10	min. Earth dist.	-3180 Apr 24 j 16:32	9° $\mathring{A}$ 10'34	29.69366 AU
min. Earth dist.	-3188 Apr 05 j 13:58	19° $\mathring{M}$ 48'54	28.83896 AU	opposition	-3180 Apr 26 j 00:09	9° $\mathring{A}$ 08'28	9°44'48
direct	-3188 Jun 24 j 14:38	18° $\mathring{M}$ 24'06		direct	-3180 Jul 14 j 22:58	7° $\mathring{A}$ 46'42	
conjunction	-3188 Oct 08 j 10:45	21° $\mathring{M}$ 04'13	13°01'53	conjunction	-3180 Oct 27 j 04:31	10° $\mathring{A}$ 16'49	8°50'51
minimum elong	-3188 Oct 08 j 11:10	21° $\mathring{M}$ 04'16	13°01'54	minimum elong	-3180 Oct 27 j 04:52	10° $\mathring{A}$ 16'51	8°50'50
max. Earth dist.	-3188 Oct 08 j 17:35	21° $\mathring{M}$ 04'54	30.81819 AU	max. Earth dist.	-3180 Oct 28 j 13:22	10° $\mathring{A}$ 19'56	31.74397 AU
retrograde	-3187 Jan 20 j 08:50	23° $\mathring{M}$ 42'09		retrograde	-3179 Feb 08 j 05:15	12° $\mathring{A}$ 46'43	
opposition	-3187 Apr 08 j 15:08	22° $\mathring{M}$ 19'23	13°40'56	min. Earth dist.	-3179 Apr 27 j 06:05	11° $\mathring{A}$ 28'03	29.84590 AU
min. Earth dist.	-3187 Apr 08 j 07:30	22° $\mathring{M}$ 19'55	28.90939 AU	opposition	-3179 Apr 28 j 15:55	11° $\mathring{A}$ 25'48	9°07'54
direct	-3187 Jun 27 j 12:58	20° $\mathring{M}$ 55'09		direct	-3179 Jul 17 j 14:38	10° $\mathring{A}$ 04'29	
conjunction	-3187 Oct 11 j 03:15	23° $\mathring{M}$ 34'10	12°34'00	conjunction	-3179 Oct 29 j 15:41	12° $\mathring{A}$ 33'14	8°16'12
minimum elong	-3187 Oct 11 j 03:40	23° $\mathring{M}$ 34'12	12°34'01	minimum elong	-3179 Oct 29 j 16:01	12° $\mathring{A}$ 33'16	8°16'11
max. Earth dist.	-3187 Oct 11 j 12:31	23° $\mathring{M}$ 35'05	30.89745 AU	max. Earth dist.	-3179 Oct 31 j 03:31	12° $\mathring{A}$ 36'37	31.90364 AU
retrograde	-3186 Jan 23 j 01:10	26° $\mathring{M}$ 11'15		retrograde	-3178 Feb 10 j 15:51	15° $\mathring{A}$ 02'02	
opposition	-3186 Apr 11 j 11:38	24° $\mathring{M}$ 48'38	13°10'22	min. Earth dist.	-3178 Apr 29 j 17:49	13° $\mathring{A}$ 43'53	30.00619 AU
min. Earth dist.	-3186 Apr 11 j 00:40	24° $\mathring{M}$ 49'23	28.98980 AU	opposition	-3178 May 01 j 06:52	13° $\mathring{A}$ 41'27	8°30'32
direct	-3186 Jun 30 j 08:42	23° $\mathring{M}$ 24'41		direct	-3178 Jul 20 j 07:11	12° $\mathring{A}$ 20'34	
conjunction	-3186 Oct 13 j 19:17	26° $\mathring{M}$ 02'32	12°04'55	conjunction	-3178 Nov 01 j 02:12	14° $\mathring{A}$ 47'57	7°41'09
minimum elong	-3186 Oct 13 j 19:41	26° $\mathring{M}$ 02'34	12°04'56	minimum elong	-3178 Nov 01 j 02:31	14° $\mathring{A}$ 47'58	7°41'07
max. Earth dist.	-3186 Oct 14 j 08:57	26° $\mathring{M}$ 03'53	30.98684 AU	max. Earth dist.	-3178 Nov 02 j 16:01	14° $\mathring{A}$ 51'29	32.07077 AU
retrograde	-3185 Jan 25 j 15:36	28° $\mathring{M}$ 38'41		retrograde	-3177 Feb 13 j 02:45	17° $\mathring{A}$ 15'36	
opposition	-3185 Apr 14 j 07:30	27° $\mathring{M}$ 16'14	12°38'34	min. Earth dist.	-3177 May 02 j 05:40	15° $\mathring{A}$ 57'55	30.17401 AU
min. Earth dist.	-3185 Apr 13 j 17:29	27° $\mathring{M}$ 17'12	29.08040 AU	opposition	-3177 May 03 j 21:06	15° $\mathring{A}$ 55'20	7°52'49
direct	-3185 Jul 03 j 04:49	25° $\mathring{M}$ 52'35		direct	-3177 Jul 22 j 21:00	14° $\mathring{A}$ 34'54	
conjunction	-3185 Oct 16 j 10:23	28° $\mathring{M}$ 29'12	11°34'45	conjunction	-3177 Nov 03 j 12:11	17° $\mathring{A}$ 00'54	7°05'49
minimum elong	-3185 Oct 16 j 10:48	28° $\mathring{M}$ 29'14	11°34'46	minimum elong	-3177 Nov 03 j 12:28	17° $\mathring{A}$ 00'56	7°05'47
max. Earth dist.	-3185 Oct 17 j 02:30	28° $\mathring{M}$ 30'47	31.08666 AU	max. Earth dist.	-3177 Nov 05 j 05:09	17° $\mathring{A}$ 04'43	32.24478 AU
retrograde	-3185 Nov 26 j 13:02	0° $\mathring{A}$		retrograde	-3176 Feb 15 j 11:17	19° $\mathring{A}$ 27'23	
min. Earth dist.	-3184 Jan 28 j 07:57	1° $\mathring{A}$ 04'24		min. Earth dist.	-3176 May 03 j 17:02	18° $\mathring{A}$ 10'09	30.34832 AU
opposition	-3184 Apr 05 j 01:02	30° $\mathring{R}$ $\mathring{M}$		opposition	-3176 May 05 j 10:32	18° $\mathring{A}$ 07'27	7°14'51
min. Earth dist.	-3184 Apr 15 j 08:24	29° $\mathring{M}$ 43'22	29.18174 AU	direct	-3176 Jul 24 j 11:50	16° $\mathring{A}$ 47'27	
opposition	-3184 Apr 16 j 02:36	29° $\mathring{M}$ 42'08	12°05'38	conjunction	-3176 Nov 04 j 21:17	19° $\mathring{A}$ 12'03	6°30'16
direct	-3184 Jul 04 j 23:06	28° $\mathring{M}$ 18'47		minimum elong	-3176 Nov 04 j 21:33	19° $\mathring{A}$ 12'05	6°30'13
retrograde	-3184 Sep 24 j 10:41	0° $\mathring{A}$		max. Earth dist.	-3176 Nov 06 j 15:29	19° $\mathring{A}$ 15'57	32.42485 AU
conjunction	-3184 Oct 18 j 01:02	0° $\mathring{A}$ 54'08	11°03'35	retrograde	-3175 Feb 16 j 20:57	21° $\mathring{A}$ 37'22	
minimum elong	-3184 Oct 18 j 01:27	0° $\mathring{A}$ 54'11	11°03'34	min. Earth dist.	-3175 May 06 j 02:42	20° $\mathring{A}$ 20'37	30.52884 AU
max. Earth dist.	-3184 Oct 18 j 21:35	0° $\mathring{A}$ 56'09	31.19721 AU	opposition	-3175 May 07 j 23:09	20° $\mathring{A}$ 17'45	6°36'44
retrograde	-3183 Jan 29 j 21:23	3° $\mathring{A}$ 28'20		direct	-3175 Jul 26 j 23:58	18° $\mathring{A}$ 58'09	
opposition	-3183 Apr 18 j 21:03	2° $\mathring{A}$ 06'17	11°31'41	conjunction	-3175 Nov 07 j 05:52	21° $\mathring{A}$ 21'21	5°54'35
min. Earth dist.	-3183 Apr 18 j 00:12	2° $\mathring{A}$ 07'41	29.29388 AU	minimum elong	-3175 Nov 07 j 06:07	21° $\mathring{A}$ 21'23	5°54'33
direct	-3183 Jul 07 j 18:31	0° $\mathring{A}$ 43'18		max. Earth dist.	-3175 Nov 09 j 03:19	21° $\mathring{A}$ 25'31	32.61074 AU
conjunction	-3183 Oct 20 j 14:54	3° $\mathring{A}$ 17'22	10°31'30	retrograde	-3174 Feb 19 j 03:40	23° $\mathring{A}$ 45'29	
minimum elong	-3183 Oct 20 j 15:18	3° $\mathring{A}$ 17'24	10°31'30	min. Earth dist.	-3174 May 08 j 13:17	22° $\mathring{A}$ 29'07	30.71525 AU
max. Earth dist.	-3183 Oct 21 j 13:54	3° $\mathring{A}$ 19'36	31.31869 AU	opposition	-3174 May 10 j 11:08	22° $\mathring{A}$ 26'10	5°58'33
retrograde	-3182 Feb 01 j 12:51	5° $\mathring{A}$ 50'31		direct	-3174 Jul 29 j 12:24	21° $\mathring{A}$ 06'58	
opposition	-3182 Apr 21 j 14:49	4° $\mathring{A}$ 28'42	10°56'49	conjunction	-3174 Nov 09 j 13:26	23° $\mathring{A}$ 28'46	5°18'51
min. Earth dist.	-3182 Apr 20 j 13:28	4° $\mathring{A}$ 30'25	29.41694 AU	minimum elong	-3174 Nov 09 j 13:39	23° $\mathring{A}$ 28'47	5°18'48
direct	-3182 Jul 10 j 12:12	3° $\mathring{A}$ 06'06		max. Earth dist.	-3174 Nov 11 j 12:04	23° $\mathring{A}$ 33'00	32.80240 AU
conjunction	-3182 Oct 23 j 04:04	5° $\mathring{A}$ 38'52	9°58'37	retrograde	-3173 Feb 21 j 12:17	25° $\mathring{A}$ 51'42	
minimum elong	-3182 Oct 23 j 04:27	5° $\mathring{A}$ 38'54	9°58'36	min. Earth dist.	-3173 May 10 j 21:00	24° $\mathring{A}$ 35'48	30.90775 AU
max. Earth dist.	-3182 Oct 24 j 07:08	5° $\mathring{A}$ 41'28	31.45070 AU	opposition	-3173 May 12 j 22:09	24° $\mathring{A}$ 32'40	5°20'21
retrograde	-3181 Feb 04 j 01:53	8° $\mathring{A}$ 10'58		direct	-3173 Jul 31 j 22:34	23° $\mathring{A}$ 13'52	
min. Earth dist.	-3181 Apr 23 j 04:25	6° $\mathring{A}$ 51'17	29.55043 AU				



# Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 15

Attention, astronomical year style is used: The year -3173 in astronomical counting style is the year 3174 BCE in historical counting style.

conjunction	-3173 Nov 11 j 20:26	25° <u>♂</u> 34'16	4°43'08	conjunction	-3165 Nov 27 j 03:50	11° <u>♂</u> 16'02	0°04'42
minimum elong	-3173 Nov 11 j 20:38	25° <u>♂</u> 34'17	4°43'05	minimum elong	-3165 Nov 27 j 03:49	11° <u>♂</u> 16'02	0°04'38
max. Earth dist.	-3173 Nov 13 j 22:06	25° <u>♂</u> 38'43	32.99990 AU	behind sun begin	-3165 Nov 26 j 21:35	11° <u>♂</u> 15'32	
retrograde	-3172 Feb 23 j 18:42	27° <u>♂</u> 56'00		behind sun end	-3165 Nov 27 j 10:03	11° <u>♂</u> 16'32	
min. Earth dist.	-3172 May 12 j 06:02	26° <u>♂</u> 40'28	31.10656 AU	max. Earth dist.	-3165 Nov 29 j 19:57	11° <u>♂</u> 21'26	34.78499 AU
opposition	-3172 May 14 j 08:20	26° <u>♂</u> 37'16	4°42'14	desc. node	-3164 Jan 16 j 23:29	12° <u>♂</u> 48'44	
direct	-3172 Aug 02 j 08:34	25° <u>♂</u> 18'51		retrograde	-3164 Mar 10 j 02:58	13° <u>♂</u> 28'46	
				min. Earth dist.	-3164 May 27 j 21:25	12° <u>♂</u> 16'50	32.90398 AU
conjunction	-3172 Nov 13 j 02:40	27° <u>♂</u> 37'52	4°07'29	opposition	-3164 May 30 j 15:40	12° <u>♂</u> 12'49	0°-12'-56
minimum elong	-3172 Nov 13 j 02:50	27° <u>♂</u> 37'53	4°07'25	direct	-3164 Aug 18 j 19:17	10° <u>♂</u> 57'48	
max. Earth dist.	-3172 Nov 15 j 06:07	27° <u>♂</u> 42'28	33.20372 AU				
retrograde	-3171 Feb 25 j 02:09	29° <u>♂</u> 58'25		conjunction	-3164 Nov 28 j 05:09	13° <u>♂</u> 06'41	0°-28'-34
min. Earth dist.	-3171 May 14 j 12:08	28° <u>♂</u> 43'23	31.31191 AU	minimum elong	-3164 Nov 28 j 05:08	13° <u>♂</u> 06'41	0°28'39
opposition	-3171 May 16 j 17:44	28° <u>♂</u> 40'00	4°04'15	max. Earth dist.	-3164 Nov 30 j 22:47	13° <u>♂</u> 12'10	35.02483 AU
direct	-3171 Aug 04 j 19:48	27° <u>♂</u> 22'00			-3163 Feb 04 j 10:59	15° <u>♂</u>	
				retrograde	-3163 Mar 12 j 04:50	15° <u>♂</u> 18'22	
conjunction	-3171 Nov 15 j 08:01	29° <u>♂</u> 39'40	3°31'57		-3163 Apr 17 j 23:57	15° <u>♂</u>	
minimum elong	-3171 Nov 15 j 08:10	29° <u>♂</u> 39'41	3°31'55	min. Earth dist.	-3163 May 30 j 01:09	14° <u>♂</u> 06'44	33.14490 AU
max. Earth dist.	-3171 Nov 17 j 13:56	29° <u>♂</u> 44'26	33.41383 AU	opposition	-3163 Jun 01 j 19:41	14° <u>♂</u> 02'43	0°-47'-52
	-3171 Nov 24 j 22:37	0° <u>♂</u>		direct	-3163 Aug 20 j 22:18	12° <u>♂</u> 48'06	
retrograde	-3170 Feb 27 j 09:19	1° <u>♂</u> 59'03					
min. Earth dist.	-3170 May 16 j 19:12	0° <u>♂</u> 44'25	31.52395 AU	conjunction	-3163 Nov 30 j 05:51	14° <u>♂</u> 55'46	-1°-1'-15
opposition	-3170 May 19 j 02:36	0° <u>♂</u> 40'57	3°26'27	minimum elong	-3163 Nov 30 j 05:49	14° <u>♂</u> 55'46	1°01'20
	-3170 Jun 16 j 16:04	30° <u>♂</u>			-3163 Dec 02 j 08:54	15° <u>♂</u>	
direct	-3170 Aug 07 j 04:25	29° <u>♂</u> 23'22		max. Earth dist.	-3163 Dec 03 j 00:38	15° <u>♂</u> 01'18	35.26627 AU
	-3170 Sep 25 j 09:37	0° <u>♂</u>		retrograde	-3162 Mar 14 j 05:38	17° <u>♂</u> 06'22	
				min. Earth dist.	-3162 Jun 01 j 02:49	15° <u>♂</u> 55'07	33.38726 AU
conjunction	-3170 Nov 17 j 12:57	1° <u>♂</u> 39'43	2°56'38	opposition	-3162 Jun 03 j 22:54	15° <u>♂</u> 51'02	-1°-22'-15
minimum elong	-3170 Nov 17 j 13:04	1° <u>♂</u> 39'44	2°56'34		-3162 Jul 12 j 21:19	15° <u>♂</u>	
max. Earth dist.	-3170 Nov 19 j 21:19	1° <u>♂</u> 44'40	33.63035 AU	direct	-3162 Aug 23 j 03:49	14° <u>♂</u> 36'46	
retrograde	-3169 Mar 01 j 12:48	3° <u>♂</u> 57'56			-3162 Oct 02 j 01:11	15° <u>♂</u>	
min. Earth dist.	-3169 May 19 j 00:36	2° <u>♂</u> 43'49	31.74222 AU				
opposition	-3169 May 21 j 10:25	2° <u>♂</u> 40'12	2°48'56	conjunction	-3162 Dec 02 j 05:57	16° <u>♂</u> 43'16	-1°-33'-26
direct	-3169 Aug 09 j 13:58	1° <u>♂</u> 23'03		minimum elong	-3162 Dec 02 j 05:53	16° <u>♂</u> 43'16	1°33'32
				max. Earth dist.	-3162 Dec 05 j 01:15	16° <u>♂</u> 48'48	35.50894 AU
conjunction	-3169 Nov 19 j 17:02	3° <u>♂</u> 38'06	2°21'33	retrograde	-3161 Mar 16 j 06:43	18° <u>♂</u> 52'48	
minimum elong	-3169 Nov 19 j 17:08	3° <u>♂</u> 38'07	2°21'30	min. Earth dist.	-3161 Jun 03 j 04:17	17° <u>♂</u> 41'52	33.63132 AU
max. Earth dist.	-3169 Nov 22 j 02:43	3° <u>♂</u> 43'07	33.85259 AU	opposition	-3161 Jun 06 j 01:22	17° <u>♂</u> 37'44	-1°-56'-3
retrograde	-3168 Mar 02 j 17:03	5° <u>♂</u> 55'12		direct	-3161 Aug 25 j 06:42	16° <u>♂</u> 23'48	
min. Earth dist.	-3168 May 20 j 05:41	4° <u>♂</u> 41'32	31.96630 AU				
opposition	-3168 May 22 j 17:40	4° <u>♂</u> 37'49	2°11'43	conjunction	-3161 Dec 04 j 05:32	18° <u>♂</u> 29'09	-2°-5'-6
direct	-3168 Aug 10 j 21:30	3° <u>♂</u> 21'07		minimum elong	-3161 Dec 04 j 05:28	18° <u>♂</u> 29'09	2°05'11
				max. Earth dist.	-3161 Dec 07 j 02:44	18° <u>♂</u> 34'48	35.75322 AU
conjunction	-3168 Nov 20 j 20:37	5° <u>♂</u> 34'54	1°46'46	retrograde	-3160 Mar 17 j 04:00	20° <u>♂</u> 37'38	
minimum elong	-3168 Nov 20 j 20:41	5° <u>♂</u> 34'54	1°46'41	min. Earth dist.	-3160 Jun 04 j 05:31	19° <u>♂</u> 26'59	33.87715 AU
max. Earth dist.	-3168 Nov 23 j 09:09	5° <u>♂</u> 40'07	34.07999 AU	opposition	-3160 Jun 07 j 03:11	19° <u>♂</u> 22'51	-2°-29'-15
retrograde	-3167 Mar 04 j 18:47	7° <u>♂</u> 50'53		direct	-3160 Aug 26 j 10:43	18° <u>♂</u> 09'15	
min. Earth dist.	-3167 May 22 j 11:00	6° <u>♂</u> 37'39	32.19524 AU				
opposition	-3167 May 25 j 00:12	6° <u>♂</u> 33'52	1°34'53	conjunction	-3160 Dec 05 j 04:17	20° <u>♂</u> 13'27	-2°-36'-13
direct	-3167 Aug 13 j 05:45	5° <u>♂</u> 17'37		minimum elong	-3160 Dec 05 j 04:12	20° <u>♂</u> 13'27	2°36'19
				max. Earth dist.	-3160 Dec 08 j 01:40	20° <u>♂</u> 19'04	35.99935 AU
conjunction	-3167 Nov 22 j 23:30	7° <u>♂</u> 30'08	1°12'19	retrograde	-3159 Mar 19 j 02:00	22° <u>♂</u> 20'55	
minimum elong	-3167 Nov 22 j 23:33	7° <u>♂</u> 30'08	1°12'16	min. Earth dist.	-3159 Jun 06 j 04:38	21° <u>♂</u> 10'39	34.12536 AU
max. Earth dist.	-3167 Nov 25 j 12:44	7° <u>♂</u> 35'23	34.31174 AU	opposition	-3159 Jun 09 j 04:21	21° <u>♂</u> 06'25	-3°-1'-50
retrograde	-3166 Mar 06 j 22:32	9° <u>♂</u> 45'02		direct	-3159 Aug 28 j 12:19	19° <u>♂</u> 53'09	
min. Earth dist.	-3166 May 24 j 14:17	8° <u>♂</u> 32'17	32.42849 AU				
opposition	-3166 May 27 j 06:04	8° <u>♂</u> 28'22	0°58'28	conjunction	-3159 Dec 07 j 02:41	21° <u>♂</u> 56'15	-3°-6'-45
direct	-3166 Aug 15 j 10:53	7° <u>♂</u> 12'33		minimum elong	-3159 Dec 07 j 02:34	21° <u>♂</u> 56'15	3°06'50
				max. Earth dist.	-3159 Dec 10 j 02:22	22° <u>♂</u> 02'01	36.24784 AU
conjunction	-3166 Nov 25 j 01:54	9° <u>♂</u> 23'50	0°38'16	retrograde	-3158 Mar 20 j 22:52	24° <u>♂</u> 02'44	
minimum elong	-3166 Nov 25 j 01:56	9° <u>♂</u> 23'50	0°38'11	min. Earth dist.	-3158 Jun 08 j 05:02	22° <u>♂</u> 52'46	34.37616 AU
max. Earth dist.	-3166 Nov 27 j 17:38	9° <u>♂</u> 29'15	34.54701 AU	opposition	-3158 Jun 11 j 04:59	22° <u>♂</u> 48'31	-3°-33'-46
retrograde	-3165 Mar 08 j 23:50	11° <u>♂</u> 37'40		direct	-3158 Aug 30 j 13:29	21° <u>♂</u> 35'37	
min. Earth dist.	-3165 May 26 j 19:15	10° <u>♂</u> 25'16	32.66499 AU				
opposition	-3165 May 29 j 11:21	10° <u>♂</u> 21'22	0°22'30	conjunction	-3158 Dec 09 j 00:30	23° <u>♂</u> 37'39	-3°-36'-42
direct	-3165 Aug 17 j 15:59	9° <u>♂</u> 05'58		minimum elong	-3158 Dec 09 j 00:22	23° <u>♂</u> 37'38	3°36'49
				max. Earth dist.	-3158 Dec 12 j 00:34	23° <u>♂</u> 43'24	36.49888 AU



# Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 16

Attention, astronomical year style is used: The year -3157 in astronomical counting style is the year 3158 BCE in historical counting style.

retrograde	-3157 Mar 22 j 21:27	25°M43'10		minimum elong	-3150 Dec 21 j 14:57	6°Z26'55	7°14'18
min. Earth dist.	-3157 Jun 10 j 02:44	24°M33'37	34.62948 AU	max. Earth dist.	-3150 Dec 24 j 20:15	6°Z32'44	38.54262 AU
opposition	-3157 Jun 13 j 04:52	24°M29'16	-4°-5'-2	retrograde	-3149 Apr 04 j 14:28	8°Z25'37	
direct	-3157 Sep 01 j 12:32	23°M16'43		min. Earth dist.	-3149 Jun 23 j 04:29	7°Z18'32	36.68639 AU
				opposition	-3149 Jun 26 j 09:51	7°Z14'11	-7°-50'-59
conjunction	-3157 Dec 10 j 21:49	25°M17'45	-4°-6'-3	direct	-3149 Sep 14 j 17:34	6°Z04'21	
minimum elong	-3157 Dec 10 j 21:41	25°M17'44	4°06'08				
max. Earth dist.	-3157 Dec 13 j 23:19	25°M23'33	36.75208 AU	conjunction	-3149 Dec 23 j 09:11	7°Z58'06	-7°-38'-36
retrograde	-3156 Mar 23 j 19:45	27°M22'21		minimum elong	-3149 Dec 23 j 09:00	7°Z58'05	7°38'43
min. Earth dist.	-3156 Jun 11 j 01:54	26°M13'06	34.88507 AU	max. Earth dist.	-3149 Dec 26 j 14:56	8°Z03'55	38.79479 AU
opposition	-3156 Jun 14 j 04:13	26°M08'46	-4°-35'-39	retrograde	-3148 Apr 05 j 08:34	9°Z55'57	
direct	-3156 Sep 02 j 11:06	24°M56'35		min. Earth dist.	-3148 Jun 23 j 23:23	8°Z49'07	36.93995 AU
				opposition	-3148 Jun 27 j 05:03	8°Z44'46	-8°-16'-12
conjunction	-3156 Dec 11 j 18:45	26°M56'38	-4°-34'-47	direct	-3148 Sep 15 j 13:13	7°Z35'12	
minimum elong	-3156 Dec 11 j 18:36	26°M56'37	4°34'53				
max. Earth dist.	-3156 Dec 14 j 21:22	27°M02'29	37.00732 AU	conjunction	-3148 Dec 24 j 02:37	9°Z28'06	-8°-2'-22
retrograde	-3155 Mar 25 j 17:37	29°M00'19		minimum elong	-3148 Dec 24 j 02:24	9°Z28'05	8°02'30
min. Earth dist.	-3155 Jun 12 j 23:27	27°M51'28	35.14236 AU	max. Earth dist.	-3148 Dec 27 j 07:59	9°Z33'51	39.04605 AU
opposition	-3155 Jun 16 j 03:03	27°M47'05	-5°-5'-35	retrograde	-3147 Apr 07 j 02:12	11°Z25'09	
direct	-3155 Sep 04 j 10:18	26°M35'16		min. Earth dist.	-3147 Jun 25 j 17:35	10°Z18'34	37.19315 AU
				opposition	-3147 Jun 29 j 00:02	10°Z14'12	-8°-40'-44
conjunction	-3155 Dec 13 j 14:58	28°M34'22	-5°-2'-54	direct	-3147 Sep 17 j 08:03	9°Z04'53	
minimum elong	-3155 Dec 13 j 14:49	28°M34'21	5°03'00				
max. Earth dist.	-3155 Dec 16 j 17:59	28°M40'13	37.26380 AU	conjunction	-3147 Dec 25 j 19:41	10°Z56'58	-8°-25'-31
	-3154 Feb 02 j 07:40	0°Z		minimum elong	-3147 Dec 25 j 19:29	10°Z56'57	8°25'38
retrograde	-3154 Mar 27 j 15:36	0°Z37'12		max. Earth dist.	-3147 Dec 29 j 02:39	11°Z02'48	39.29705 AU
	-3154 May 22 j 02:41	30°RM		retrograde	-3146 Apr 08 j 15:46	12°Z53'14	
min. Earth dist.	-3154 Jun 14 j 21:02	29°M28'42	35.40088 AU	min. Earth dist.	-3146 Jun 27 j 12:26	11°Z46'52	37.44617 AU
opposition	-3154 Jun 18 j 01:31	29°M24'17	-5°-34'-50	opposition	-3146 Jun 30 j 18:30	11°Z42'31	-9°-4'-35
direct	-3154 Sep 06 j 07:51	28°M12'51		direct	-3146 Sep 19 j 05:50	10°Z33'29	
	-3154 Dec 09 j 12:40	0°Z					
conjunction	-3154 Dec 15 j 11:06	0°Z11'01	-5°-30'-24	conjunction	-3146 Dec 27 j 12:26	12°Z24'45	-8°-48'-2
minimum elong	-3154 Dec 15 j 10:56	0°Z11'01	5°30'31	minimum elong	-3146 Dec 27 j 12:12	12°Z24'45	8°48'09
max. Earth dist.	-3154 Dec 18 j 15:41	0°Z16'57	37.52098 AU	max. Earth dist.	-3146 Dec 30 j 18:47	12°Z30'31	39.54807 AU
retrograde	-3153 Mar 29 j 09:08	2°Z13'00		retrograde	-3145 Apr 10 j 07:49	14°Z20'16	
min. Earth dist.	-3153 Jun 16 j 18:54	1°Z04'48	35.65968 AU	min. Earth dist.	-3145 Jun 29 j 04:53	13°Z14'13	37.69931 AU
opposition	-3153 Jun 19 j 23:13	1°Z00'25	-6°-3'-25	opposition	-3145 Jul 02 j 12:19	13°Z09'49	-9°-27'-46
	-3153 Aug 11 j 04:34	30°RM		direct	-3145 Sep 21 j 00:25	12°Z01'03	
direct	-3153 Sep 08 j 07:51	29°M49'21					
	-3153 Oct 05 j 19:30	0°Z		conjunction	-3145 Dec 29 j 04:48	13°Z51'33	-9°-9'-55
conjunction	-3153 Dec 17 j 06:42	1°Z46'37	-5°-57'-16	minimum elong	-3145 Dec 29 j 04:36	13°Z51'32	9°10'02
minimum elong	-3153 Dec 17 j 06:32	1°Z46'36	5°57'23	max. Earth dist.	-3144 Jan 01 j 12:17	13°Z57'21	39.79904 AU
max. Earth dist.	-3153 Dec 20 j 10:37	1°Z52'28	37.77803 AU	retrograde	-3144 Apr 10 j 23:55	15°Z46'21	
retrograde	-3152 Mar 30 j 04:15	3°Z47'46		min. Earth dist.	-3144 Jun 29 j 23:14	14°Z40'30	37.95241 AU
min. Earth dist.	-3152 Jun 17 j 15:01	2°Z39'56	35.91818 AU	opposition	-3144 Jul 03 j 05:57	14°Z36'09	-9°-50'-16
opposition	-3152 Jun 20 j 20:33	2°Z35'30	-6°-31'-18	direct	-3144 Sep 21 j 18:04	13°Z27'41	
direct	-3152 Sep 09 j 05:49	1°Z24'46					
conjunction	-3152 Dec 18 j 01:53	3°Z21'09	-6°-23'-32	conjunction	-3144 Dec 29 j 20:43	15°Z17'26	-9°-31'-11
minimum elong	-3152 Dec 18 j 01:42	3°Z21'08	6°23'39	minimum elong	-3144 Dec 29 j 20:30	15°Z17'25	9°31'18
max. Earth dist.	-3152 Dec 21 j 07:07	3°Z27'04	38.03421 AU	max. Earth dist.	-3143 Jan 02 j 04:25	15°Z23'13	40.04993 AU
retrograde	-3151 Mar 31 j 22:31	5°Z21'29		retrograde	-3143 Apr 12 j 16:39	17°Z11'32	
min. Earth dist.	-3151 Jun 19 j 12:49	4°Z13'53	36.17561 AU	min. Earth dist.	-3143 Jul 01 j 15:21	16°Z05'59	38.20510 AU
opposition	-3151 Jun 22 j 17:32	4°Z09'31	-6°-58'-32	opposition	-3143 Jul 04 j 23:06	16°Z01'36	-10°-12'-6
direct	-3151 Sep 11 j 03:15	2°Z59'07		direct	-3143 Sep 23 j 10:40	14°Z53'25	
conjunction	-3151 Dec 19 j 20:47	4°Z54'36	-6°-49'-10	conjunction	-3143 Dec 31 j 12:22	16°Z42'28	-9°-51'-50
minimum elong	-3151 Dec 19 j 20:36	4°Z54'35	6°49'16	minimum elong	-3143 Dec 31 j 12:10	16°Z42'27	9°51'57
max. Earth dist.	-3151 Dec 23 j 01:37	5°Z00'26	38.28921 AU	max. Earth dist.	-3142 Jan 03 j 19:59	16°Z48'12	40.30015 AU
retrograde	-3150 Apr 02 j 18:02	6°Z54'07		retrograde	-3142 Apr 14 j 11:10	18°Z35'53	
min. Earth dist.	-3150 Jun 21 j 07:59	5°Z46'50	36.43167 AU	min. Earth dist.	-3142 Jul 03 j 08:23	17°Z30'35	38.45708 AU
opposition	-3150 Jun 24 j 13:52	5°Z42'25	-7°-25'-6	opposition	-3142 Jul 06 j 15:56	17°Z26'14	-10°-33'-17
direct	-3150 Sep 12 j 23:09	4°Z32'19		direct	-3142 Sep 25 j 00:59	16°Z18'20	
conjunction	-3150 Dec 21 j 15:09	6°Z26'56	-7°-14'-12	conjunction	-3141 Jan 02 j 03:53	18°Z06'42	-10°-11'-53
				minimum elong	-3141 Jan 02 j 03:40	18°Z06'41	10°12'00
				max. Earth dist.	-3141 Jan 05 j 12:19	18°Z12'27	40.54929 AU
				retrograde	-3141 Apr 16 j 01:51	19°Z59'27	



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 17

Attention, astronomical year style is used: The year -3141 in astronomical counting style is the year 3142 BCE in historical counting style.

min. Earth dist.	-3141 Jul 05 j 01:17	18° $\mathring{A}$ 54'24	38.70742 AU	opposition	-3133 Jul 19 j 07:22	29° $\mathring{A}$ 33'10	-13°-16'-48
opposition	-3141 Jul 08 j 08:20	18° $\mathring{A}$ 50'05	-10°-53'-50	direct	-3133 Oct 07 j 21:31	28° $\mathring{A}$ 27'25	
direct	-3141 Sep 26 j 18:24	17° $\mathring{A}$ 42'29			-3132 Jan 08 j 04:11	0° $\mathring{Z}$	
conjunction	-3140 Jan 03 j 19:00	19° $\mathring{A}$ 30'11	-10°-31'-20	conjunction	-3132 Jan 14 j 10:01	0° $\mathring{Z}$ 10'11	-12°-46'-58
minimum elong	-3140 Jan 03 j 18:47	19° $\mathring{A}$ 30'10	10°31'28	minimum elong	-3132 Jan 14 j 09:49	0° $\mathring{Z}$ 10'10	12°47'06
max. Earth dist.	-3140 Jan 07 j 02:18	19° $\mathring{A}$ 35'49	40.79644 AU	max. Earth dist.	-3132 Jan 17 j 15:53	0° $\mathring{Z}$ 15'29	42.67196 AU
retrograde	-3140 Apr 16 j 16:37	21° $\mathring{A}$ 22'17		retrograde	-3132 Apr 27 j 04:11	1° $\mathring{Z}$ 57'28	
min. Earth dist.	-3140 Jul 05 j 16:54	20° $\mathring{A}$ 17'30	38.95559 AU	min. Earth dist.	-3132 Jul 16 j 16:58	0° $\mathring{Z}$ 54'09	40.83798 AU
opposition	-3140 Jul 09 j 00:22	20° $\mathring{A}$ 13'12	-11°-13'-46	opposition	-3132 Jul 19 j 20:46	0° $\mathring{Z}$ 50'09	-13°-32'-3
direct	-3140 Sep 27 j 10:48	19° $\mathring{A}$ 05'52			-3132 Sep 02 j 18:34	30° $\mathring{R}$ $\mathring{A}$	
				direct	-3132 Oct 08 j 11:12	29° $\mathring{A}$ 44'38	
					-3132 Nov 12 j 06:28	0° $\mathring{Z}$	
conjunction	-3139 Jan 04 j 09:59	20° $\mathring{A}$ 52'55	-10°-50'-13	conjunction	-3131 Jan 14 j 22:39	1° $\mathring{Z}$ 26'51	-13°-1'-28
minimum elong	-3139 Jan 04 j 09:46	20° $\mathring{A}$ 52'54	10°50'20	minimum elong	-3131 Jan 14 j 22:29	1° $\mathring{Z}$ 26'50	13°01'35
max. Earth dist.	-3139 Jan 07 j 18:00	20° $\mathring{A}$ 58'35	41.04103 AU	max. Earth dist.	-3131 Jan 18 j 04:22	1° $\mathring{Z}$ 32'07	42.89700 AU
retrograde	-3139 Apr 18 j 05:32	22° $\mathring{A}$ 44'24		retrograde	-3131 Apr 28 j 17:21	3° $\mathring{Z}$ 13'36	
min. Earth dist.	-3139 Jul 07 j 10:08	21° $\mathring{A}$ 39'47	39.20087 AU	min. Earth dist.	-3131 Jul 18 j 05:34	2° $\mathring{Z}$ 10'32	41.06400 AU
opposition	-3139 Jul 10 j 16:14	21° $\mathring{A}$ 35'34	-11°-33'-6	opposition	-3131 Jul 21 j 09:48	2° $\mathring{Z}$ 06'31	-13°-46'-44
direct	-3139 Sep 29 j 04:42	20° $\mathring{A}$ 28'30		direct	-3131 Oct 09 j 23:28	1° $\mathring{Z}$ 01'13	
conjunction	-3138 Jan 06 j 00:37	22° $\mathring{A}$ 14'54	-11°-8'-33	conjunction	-3130 Jan 16 j 10:53	2° $\mathring{Z}$ 42'55	-13°-15'-25
minimum elong	-3138 Jan 06 j 00:25	22° $\mathring{A}$ 14'53	11°08'40	minimum elong	-3130 Jan 16 j 10:42	2° $\mathring{Z}$ 42'54	13°15'33
max. Earth dist.	-3138 Jan 09 j 07:31	22° $\mathring{A}$ 20'27	41.28257 AU	max. Earth dist.	-3130 Jan 19 j 15:48	2° $\mathring{Z}$ 48'06	43.12011 AU
retrograde	-3138 Apr 19 j 20:21	24° $\mathring{A}$ 05'45		retrograde	-3130 Apr 30 j 08:06	4° $\mathring{Z}$ 29'09	
min. Earth dist.	-3138 Jul 09 j 01:06	23° $\mathring{A}$ 01'24	39.44280 AU	min. Earth dist.	-3130 Jul 19 j 19:05	3° $\mathring{Z}$ 26'16	41.28803 AU
opposition	-3138 Jul 12 j 07:40	22° $\mathring{A}$ 57'10	-11°-51'-50	opposition	-3130 Jul 22 j 22:44	3° $\mathring{Z}$ 22'18	-14°00'-52
direct	-3138 Sep 30 j 20:12	21° $\mathring{A}$ 50'21		direct	-3130 Oct 11 j 10:17	2° $\mathring{Z}$ 17'14	
conjunction	-3137 Jan 07 j 15:01	23° $\mathring{A}$ 36'06	-11°-26'-19	conjunction	-3129 Jan 17 j 23:11	3° $\mathring{Z}$ 58'26	-13°-28'-52
minimum elong	-3137 Jan 07 j 14:49	23° $\mathring{A}$ 36'06	11°26'25	minimum elong	-3129 Jan 17 j 23:02	3° $\mathring{Z}$ 58'25	13°29'00
max. Earth dist.	-3137 Jan 10 j 21:33	23° $\mathring{A}$ 41'36	41.52060 AU	max. Earth dist.	-3129 Jan 21 j 04:45	4° $\mathring{Z}$ 03'38	43.34096 AU
retrograde	-3137 Apr 21 j 11:46	25° $\mathring{A}$ 26'21		retrograde	-3129 May 01 j 19:31	5° $\mathring{Z}$ 44'09	
min. Earth dist.	-3137 Jul 10 j 17:28	24° $\mathring{A}$ 22'07	39.68139 AU	min. Earth dist.	-3129 Jul 21 j 08:30	4° $\mathring{Z}$ 41'26	41.50931 AU
opposition	-3137 Jul 13 j 22:43	24° $\mathring{A}$ 17'59	-12°-9'-59	opposition	-3129 Jul 24 j 11:07	4° $\mathring{Z}$ 37'32	-14°-14'-29
direct	-3137 Oct 02 j 10:14	23° $\mathring{A}$ 11'23		direct	-3129 Oct 12 j 23:17	3° $\mathring{Z}$ 32'42	
conjunction	-3136 Jan 09 j 05:09	24° $\mathring{A}$ 56'30	-11°-43'-33	conjunction	-3128 Jan 19 j 11:08	5° $\mathring{Z}$ 13'24	-13°-41'-50
minimum elong	-3136 Jan 09 j 04:57	24° $\mathring{A}$ 56'30	11°43'40	minimum elong	-3128 Jan 19 j 10:58	5° $\mathring{Z}$ 13'24	13°41'57
max. Earth dist.	-3136 Jan 12 j 11:47	25° $\mathring{A}$ 01'58	41.75548 AU	max. Earth dist.	-3128 Jan 22 j 15:03	5° $\mathring{Z}$ 18'28	43.55888 AU
retrograde	-3136 Apr 22 j 02:11	26° $\mathring{A}$ 46'07		retrograde	-3128 May 02 j 07:59	6° $\mathring{Z}$ 58'38	
min. Earth dist.	-3136 Jul 11 j 08:18	25° $\mathring{A}$ 42'05	39.91681 AU	min. Earth dist.	-3128 Jul 21 j 20:37	5° $\mathring{Z}$ 56'08	41.72740 AU
opposition	-3136 Jul 14 j 13:21	25° $\mathring{A}$ 37'58	-12°-27'-34	opposition	-3128 Jul 24 j 23:24	5° $\mathring{Z}$ 52'14	-14°-27'-35
direct	-3136 Oct 03 j 00:47	24° $\mathring{A}$ 31'35		direct	-3128 Oct 13 j 11:11	4° $\mathring{Z}$ 47'37	
conjunction	-3135 Jan 09 j 18:38	26° $\mathring{A}$ 16'05	-12°00'-14	conjunction	-3127 Jan 19 j 22:51	6° $\mathring{Z}$ 27'50	-13°-54'-18
minimum elong	-3135 Jan 09 j 18:26	26° $\mathring{A}$ 16'04	12°00'20	minimum elong	-3127 Jan 19 j 22:42	6° $\mathring{Z}$ 27'49	13°54'26
max. Earth dist.	-3135 Jan 13 j 00:11	26° $\mathring{A}$ 21'27	41.98749 AU	max. Earth dist.	-3127 Jan 23 j 02:54	6° $\mathring{Z}$ 32'53	43.77317 AU
retrograde	-3135 Apr 23 j 17:15	28° $\mathring{A}$ 05'04		retrograde	-3127 May 03 j 16:53	8° $\mathring{Z}$ 12'35	
min. Earth dist.	-3135 Jul 12 j 22:37	27° $\mathring{A}$ 01'14	40.14985 AU	min. Earth dist.	-3127 Jul 23 j 10:41	7° $\mathring{Z}$ 10'11	41.94154 AU
opposition	-3135 Jul 16 j 03:48	26° $\mathring{A}$ 57'08	-12°-44'-33	opposition	-3127 Jul 26 j 11:34	7° $\mathring{Z}$ 06'23	-14°-40'-11
direct	-3135 Oct 04 j 14:04	25° $\mathring{A}$ 50'57		direct	-3127 Oct 15 j 01:50	6° $\mathring{Z}$ 01'58	
conjunction	-3134 Jan 11 j 08:06	27° $\mathring{A}$ 34'52	-12°-16'-21	conjunction	-3126 Jan 21 j 10:35	7° $\mathring{Z}$ 41'42	-14°-6'-19
minimum elong	-3134 Jan 11 j 07:54	27° $\mathring{A}$ 34'51	12°16'29	minimum elong	-3126 Jan 21 j 10:26	7° $\mathring{Z}$ 41'41	14°06'25
max. Earth dist.	-3134 Jan 14 j 14:33	27° $\mathring{A}$ 40'15	42.21735 AU	max. Earth dist.	-3126 Jan 24 j 13:27	7° $\mathring{Z}$ 46'39	43.98344 AU
retrograde	-3134 Apr 25 j 04:01	29° $\mathring{A}$ 23'15		retrograde	-3126 May 05 j 03:53	9° $\mathring{Z}$ 25'58	
min. Earth dist.	-3134 Jul 14 j 13:40	28° $\mathring{A}$ 19'33	40.38084 AU	min. Earth dist.	-3126 Jul 24 j 22:27	8° $\mathring{Z}$ 23'44	42.15131 AU
opposition	-3134 Jul 17 j 17:45	28° $\mathring{A}$ 15'31	-13°00'-58	opposition	-3126 Jul 27 j 23:14	8° $\mathring{Z}$ 19'57	-14°-52'-19
direct	-3134 Oct 06 j 06:01	27° $\mathring{A}$ 09'33		direct	-3126 Oct 16 j 14:40	7° $\mathring{Z}$ 15'42	
conjunction	-3133 Jan 12 j 21:13	28° $\mathring{A}$ 52'52	-12°-31'-56	conjunction	-3125 Jan 22 j 22:02	8° $\mathring{Z}$ 54'58	-14°-17'-53
minimum elong	-3133 Jan 12 j 21:03	28° $\mathring{A}$ 52'51	12°32'03	minimum elong	-3125 Jan 22 j 21:54	8° $\mathring{Z}$ 54'57	14°18'00
max. Earth dist.	-3133 Jan 16 j 02:38	28° $\mathring{A}$ 58'10	42.44550 AU	max. Earth dist.	-3125 Jan 25 j 23:43	8° $\mathring{Z}$ 59'49	44.18919 AU
retrograde	-3133 Apr 26 j 01:28	0° $\mathring{Z}$		retrograde	-3125 May 06 j 17:41	10° $\mathring{Z}$ 38'44	
	-3133 Jun 27 j 14:18	30° $\mathring{R}$ $\mathring{A}$		min. Earth dist.	-3125 Jul 26 j 11:30	9° $\mathring{Z}$ 36'34	42.35664 AU
min. Earth dist.	-3133 Jul 16 j 02:27	29° $\mathring{A}$ 37'15	40.61021 AU				



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 18

Attention, astronomical year style is used: The year -3125 in astronomical counting style is the year 3126 BCE in historical counting style.

opposition	-3125 Jul	29 j 10:53	9° $\overline{32}$ '53	-15°-3'-58	conjunction	-3116 Feb	02 j 18:49	19° $\overline{27}$ '25	-15°-41'-44
direct	-3125 Oct	18 j 00:14	8° $\overline{28}$ '48		minimum elong	-3116 Feb	02 j 18:45	19° $\overline{27}$ '25	15°41'51
					max. Earth dist.	-3116 Feb	05 j 15:19	19° $\overline{31}$ '46	45.89921 AU
conjunction	-3124 Jan	24 j 09:16	10° $\overline{07}$ '34	-14°-29'00	retrograde	-3116 May	16 j 09:09	21° $\overline{07}$ '18	
minimum elong	-3124 Jan	24 j 09:07	10° $\overline{07}$ '33	14°29'07	min. Earth dist.	-3116 Aug	05 j 13:15	20° $\overline{06}$ '21	44.06661 AU
max. Earth dist.	-3124 Jan	27 j 10:50	10° $\overline{12}$ '23	44.39067 AU	opposition	-3116 Aug	08 j 07:18	20° $\overline{03}$ '01	-16°-27'-49
retrograde	-3124 May	07 j 03:43	11° $\overline{50}$ '50		direct	-3116 Oct	28 j 00:36	19° $\overline{00}$ '25	
min. Earth dist.	-3124 Jul	26 j 23:33	10° $\overline{48}$ '46	42.55770 AU					
opposition	-3124 Jul	29 j 22:03	10° $\overline{45}$ '09	-15°-15'-10	conjunction	-3115 Feb	03 j 04:20	20° $\overline{35}$ '34	-15°-48'-54
direct	-3124 Oct	18 j 12:30	9° $\overline{41}$ '12		minimum elong	-3115 Feb	03 j 04:14	20° $\overline{35}$ '33	15°49'01
					max. Earth dist.	-3115 Feb	06 j 00:07	20° $\overline{39}$ '50	46.07485 AU
conjunction	-3123 Jan	24 j 20:07	11° $\overline{19}$ '29	-14°-39'-40	retrograde	-3115 May	17 j 19:12	22° $\overline{15}$ '06	
minimum elong	-3123 Jan	24 j 20:00	11° $\overline{19}$ '29	14°39'48	min. Earth dist.	-3115 Aug	07 j 00:36	21° $\overline{14}$ '14	44.24139 AU
max. Earth dist.	-3123 Jan	27 j 20:01	11° $\overline{24}$ '10	44.58834 AU	opposition	-3115 Aug	09 j 16:41	21° $\overline{11}$ '00	-16°-34'-55
retrograde	-3123 May	08 j 14:43	13° $\overline{02}$ '15		direct	-3115 Oct	29 j 10:24	20° $\overline{08}$ '34	
min. Earth dist.	-3123 Jul	28 j 10:44	12° $\overline{00}$ '20	42.75539 AU					
opposition	-3123 Jul	31 j 09:04	11° $\overline{56}$ '43	-15°-25'-53	conjunction	-3114 Feb	04 j 13:50	21° $\overline{43}$ '22	-15°-55'-41
direct	-3123 Oct	19 j 23:01	10° $\overline{52}$ '55		minimum elong	-3114 Feb	04 j 13:47	21° $\overline{43}$ '22	15°55'48
					max. Earth dist.	-3114 Feb	07 j 08:54	21° $\overline{47}$ '35	46.24622 AU
conjunction	-3122 Jan	26 j 06:48	12° $\overline{30}$ '45	-14°-49'-53	retrograde	-3114 May	19 j 04:38	23° $\overline{22}$ '32	
minimum elong	-3122 Jan	26 j 06:41	12° $\overline{30}$ '44	14°50'00	min. Earth dist.	-3114 Aug	08 j 10:18	22° $\overline{21}$ '49	44.41137 AU
max. Earth dist.	-3122 Jan	29 j 07:12	12° $\overline{35}$ '26	44.78284 AU	opposition	-3114 Aug	11 j 01:46	22° $\overline{18}$ '37	-16°-41'-38
retrograde	-3122 May	09 j 22:53	14° $\overline{13}$ '02		direct	-3114 Oct	30 j 19:36	21° $\overline{16}$ '20	
min. Earth dist.	-3122 Jul	29 j 23:00	13° $\overline{11}$ '11	42.95006 AU					
opposition	-3122 Aug	01 j 19:51	13° $\overline{07}$ '39	-15°-36'-8	conjunction	-3113 Feb	05 j 23:08	22° $\overline{50}$ '48	-16°-2'-7
direct	-3122 Oct	21 j 12:05	12° $\overline{03}$ '59		minimum elong	-3113 Feb	05 j 23:03	22° $\overline{50}$ '47	16°02'13
					max. Earth dist.	-3113 Feb	08 j 16:02	22° $\overline{54}$ '51	46.41268 AU
conjunction	-3121 Jan	27 j 17:21	13° $\overline{41}$ '22	-14°-59'-39	retrograde	-3113 May	20 j 16:29	24° $\overline{29}$ '36	
minimum elong	-3121 Jan	27 j 17:14	13° $\overline{41}$ '22	14°59'46	min. Earth dist.	-3113 Aug	09 j 20:24	23° $\overline{28}$ '56	44.57653 AU
max. Earth dist.	-3121 Jan	30 j 16:39	13° $\overline{45}$ '59	44.97475 AU	opposition	-3113 Aug	12 j 10:40	23° $\overline{25}$ '50	-16°-47'-59
retrograde	-3121 May	11 j 07:54	15° $\overline{23}$ '12		direct	-3113 Nov	01 j 02:01	22° $\overline{23}$ '40	
min. Earth dist.	-3121 Jul	31 j 08:48	14° $\overline{21}$ '32	43.14227 AU					
opposition	-3121 Aug	03 j 06:06	14° $\overline{17}$ '59	-15°-45'-54	conjunction	-3112 Feb	07 j 08:18	23° $\overline{57}$ '47	-16°-8'-10
direct	-3121 Oct	22 j 23:35	13° $\overline{14}$ '29		minimum elong	-3112 Feb	07 j 08:16	23° $\overline{57}$ '47	16°08'17
					max. Earth dist.	-3112 Feb	10 j 01:15	24° $\overline{01}$ '50	46.57442 AU
conjunction	-3120 Jan	29 j 03:33	14° $\overline{51}$ '26	-15°-8'-57	retrograde	-3112 May	21 j 00:30	25° $\overline{36}$ '12	
minimum elong	-3120 Jan	29 j 03:27	14° $\overline{51}$ '26	15°09'03	min. Earth dist.	-3112 Aug	10 j 06:49	24° $\overline{35}$ '35	44.73695 AU
max. Earth dist.	-3120 Feb	01 j 02:22	14° $\overline{55}$ '59	45.16431 AU	opposition	-3112 Aug	12 j 19:25	24° $\overline{32}$ '34	-16°-53'-57
retrograde	-3120 May	11 j 18:59	16° $\overline{32}$ '51		direct	-3112 Nov	01 j 11:22	23° $\overline{30}$ '31	
min. Earth dist.	-3120 Jul	31 j 20:21	15° $\overline{31}$ '16	43.33229 AU					
opposition	-3120 Aug	03 j 16:27	15° $\overline{27}$ '48	-15°-55'-12	conjunction	-3111 Feb	07 j 17:02	25° $\overline{04}$ '18	-16°-13'-52
direct	-3120 Oct	23 j 09:33	14° $\overline{24}$ '28		minimum elong	-3111 Feb	07 j 16:58	25° $\overline{04}$ '17	16°13'58
					max. Earth dist.	-3111 Feb	10 j 08:09	25° $\overline{08}$ '13	46.73186 AU
conjunction	-3119 Jan	29 j 13:34	16° $\overline{01}$ '01	-15°-17'-48	retrograde	-3111 May	22 j 08:07	26° $\overline{42}$ '20	
minimum elong	-3119 Jan	29 j 13:27	16° $\overline{01}$ '01	15°17'55	min. Earth dist.	-3111 Aug	11 j 15:17	25° $\overline{41}$ '50	44.89335 AU
max. Earth dist.	-3119 Feb	01 j 12:39	16° $\overline{05}$ '34	45.35184 AU	opposition	-3111 Aug	14 j 03:55	25° $\overline{38}$ '49	-16°-59'-33
retrograde	-3119 May	13 j 06:02	17° $\overline{42}$ '01		direct	-3111 Nov	02 j 20:14	24° $\overline{36}$ '53	
min. Earth dist.	-3119 Aug	02 j 06:38	16° $\overline{40}$ '36	43.52000 AU					
opposition	-3119 Aug	05 j 02:28	16° $\overline{37}$ '09	-16°-4'-1	conjunction	-3110 Feb	09 j 01:47	26° $\overline{10}$ '18	-16°-19'-11
direct	-3119 Oct	24 j 18:28	15° $\overline{34}$ '00		minimum elong	-3110 Feb	09 j 01:45	26° $\overline{10}$ '18	16°19'18
					max. Earth dist.	-3110 Feb	11 j 16:26	26° $\overline{14}$ '11	46.88546 AU
conjunction	-3118 Jan	30 j 23:25	17° $\overline{10}$ '11	-15°-26'-12	retrograde	-3110 May	23 j 13:50	27° $\overline{47}$ '59	
minimum elong	-3118 Jan	30 j 23:19	17° $\overline{10}$ '10	15°26'18	min. Earth dist.	-3110 Aug	13 j 01:30	26° $\overline{47}$ '30	45.04623 AU
max. Earth dist.	-3118 Feb	02 j 21:01	17° $\overline{14}$ '37	45.53707 AU	opposition	-3110 Aug	15 j 12:12	26° $\overline{44}$ '35	-17°-4'-45
retrograde	-3118 May	14 j 18:16	18° $\overline{50}$ '47		direct	-3110 Nov	04 j 07:42	25° $\overline{42}$ '45	
min. Earth dist.	-3118 Aug	03 j 16:40	17° $\overline{49}$ '32	43.70538 AU					
opposition	-3118 Aug	06 j 12:16	17° $\overline{46}$ '07	-16°-12'-23	conjunction	-3109 Feb	10 j 10:27	27° $\overline{15}$ '50	-16°-24'-8
direct	-3118 Oct	26 j 01:50	16° $\overline{43}$ '08		minimum elong	-3109 Feb	10 j 10:25	27° $\overline{15}$ '50	16°24'14
					max. Earth dist.	-3109 Feb	13 j 00:36	27° $\overline{19}$ '40	47.03597 AU
conjunction	-3117 Feb	01 j 09:15	18° $\overline{18}$ '58	-15°-34'-11	retrograde	-3109 May	24 j 21:47	28° $\overline{53}$ '10	
minimum elong	-3117 Feb	01 j 09:09	18° $\overline{18}$ '57	15°34'18	min. Earth dist.	-3109 Aug	14 j 09:35	27° $\overline{52}$ '48	45.19603 AU
max. Earth dist.	-3117 Feb	04 j 07:14	18° $\overline{23}$ '24	45.71970 AU	opposition	-3109 Aug	16 j 20:14	27° $\overline{49}$ '53	-17°-9'-34
retrograde	-3117 May	16 j 01:34	19° $\overline{59}$ '12		direct	-3109 Nov	05 j 17:03	26° $\overline{48}$ '09	
min. Earth dist.	-3117 Aug	05 j 03:56	18° $\overline{58}$ '04	43.88773 AU					
opposition	-3117 Aug	07 j 21:55	18° $\overline{54}$ '44	-16°-20'-19	conjunction	-3108 Feb	11 j 18:41	28° $\overline{20}$ '55	-16°-28'-42
direct	-3117 Oct	27 j 13:15	17° $\overline{51}$ '57		minimum elong	-3108 Feb	11 j 18:40	28° $\overline{20}$ '55	16°28'49
					max. Earth dist.	-3108 Feb	14 j 07:24	28° $\overline{24}$ '39	47.18358 AU



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 19

Attention, astronomical year style is used: The year -3108 in astronomical counting style is the year 3109 BCE in historical counting style.

retrograde	-3108 May 25 j 08:48	29°☾57'55		retrograde	-3100 Jun 02 j 20:14	8°☾25'14	
min. Earth dist.	-3108 Aug 14 j 18:27	28°☾57'38	45.34318 AU	min. Earth dist.	-3100 Aug 23 j 14:49	7°☾25'34	46.39206 AU
opposition	-3108 Aug 17 j 04:16	28°☾54'46	-17°-13'-59	opposition	-3100 Aug 25 j 15:14	7°☾23'12	-17°-36'-30
direct	-3108 Nov 05 j 22:19	27°☾53'09		direct	-3100 Nov 14 j 11:56	6°☾22'32	
conjunction	-3107 Feb 12 j 03:02	29°☾25'37	-16°-32'-54	conjunction	-3099 Feb 20 j 18:00	7°☾52'59	-16°-54'-11
minimum elong	-3107 Feb 12 j 03:02	29°☾25'37	16°32'59	minimum elong	-3099 Feb 20 j 18:04	7°☾53'00	16°54'18
max. Earth dist.	-3107 Feb 14 j 16:03	29°☾29'21	47.32867 AU	max. Earth dist.	-3099 Feb 22 j 21:40	7°☾56'05	48.35700 AU
	-3107 Mar 08 j 00:41	0°☾		retrograde	-3099 Jun 04 j 01:31	9°☾27'25	
retrograde	-3107 May 26 j 16:23	1°☾02'17		min. Earth dist.	-3099 Aug 24 j 21:49	8°☾27'49	46.50202 AU
min. Earth dist.	-3107 Aug 16 j 03:19	0°☾02'04	45.48761 AU	opposition	-3099 Aug 26 j 21:53	8°☾25'28	-17°-37'-53
	-3107 Aug 17 j 21:14	30°☾☾		direct	-3099 Nov 15 j 21:07	7°☾24'53	
opposition	-3107 Aug 18 j 12:04	29°☾59'16	-17°-18'-1				
direct	-3107 Nov 07 j 06:39	28°☾57'47		conjunction	-3098 Feb 22 j 01:19	8°☾55'06	-16°-55'-28
	-3106 Jan 23 j 15:59	0°☾		minimum elong	-3098 Feb 22 j 01:21	8°☾55'06	16°55'34
				max. Earth dist.	-3098 Feb 24 j 03:12	8°☾58'05	48.46463 AU
conjunction	-3106 Feb 13 j 11:10	0°☾29'58	-16°-36'-43	retrograde	-3098 Jun 05 j 10:59	10°☾29'16	
minimum elong	-3106 Feb 13 j 11:09	0°☾29'58	16°36'50	min. Earth dist.	-3098 Aug 26 j 06:04	9°☾29'40	46.60799 AU
max. Earth dist.	-3106 Feb 15 j 22:31	0°☾33'35	47.47119 AU	opposition	-3098 Aug 28 j 04:35	9°☾27'24	-17°-38'-57
retrograde	-3106 May 27 j 23:47	2°☾06'18		direct	-3098 Nov 17 j 02:20	8°☾26'53	
min. Earth dist.	-3106 Aug 17 j 11:02	1°☾06'14	45.62930 AU				
opposition	-3106 Aug 19 j 19:45	1°☾03'26	-17°-21'-40	conjunction	-3097 Feb 23 j 08:40	9°☾56'53	-16°-56'-26
direct	-3106 Nov 08 j 14:12	0°☾02'05		minimum elong	-3097 Feb 23 j 08:44	9°☾56'53	16°56'32
				max. Earth dist.	-3097 Feb 25 j 10:31	9°☾59'51	48.56854 AU
conjunction	-3105 Feb 14 j 19:15	1°☾34'00	-16°-40'-11	retrograde	-3097 Jun 06 j 17:44	11°☾30'47	
minimum elong	-3105 Feb 14 j 19:16	1°☾34'00	16°40'16	min. Earth dist.	-3097 Aug 27 j 13:23	10°☾31'14	46.71028 AU
max. Earth dist.	-3105 Feb 17 j 06:18	1°☾37'36	47.61065 AU	opposition	-3097 Aug 29 j 10:55	10°☾29'02	-17°-39'-42
retrograde	-3105 May 29 j 05:58	3°☾10'03		direct	-3097 Nov 18 j 09:04	9°☾28'35	
min. Earth dist.	-3105 Aug 18 j 20:27	2°☾10'03	45.76772 AU				
opposition	-3105 Aug 21 j 03:15	2°☾07'21	-17°-24'-58	conjunction	-3096 Feb 24 j 15:43	10°☾58'22	-16°-57'-5
direct	-3105 Nov 09 j 23:20	1°☾06'08		minimum elong	-3096 Feb 24 j 15:46	10°☾58'22	16°57'10
				max. Earth dist.	-3096 Feb 26 j 15:39	11°☾01'13	48.66922 AU
conjunction	-3104 Feb 16 j 03:17	2°☾37'48	-16°-43'-17	retrograde	-3096 Jun 07 j 01:29	12°☾32'01	
minimum elong	-3104 Feb 16 j 03:17	2°☾37'48	16°43'24	min. Earth dist.	-3096 Aug 27 j 20:00	11°☾32'33	46.80958 AU
max. Earth dist.	-3104 Feb 18 j 13:26	2°☾41'19	47.74680 AU	opposition	-3096 Aug 29 j 17:16	11°☾30'22	-17°-40'-6
retrograde	-3104 May 29 j 12:50	4°☾13'34		direct	-3096 Nov 18 j 13:42	10°☾30'00	
min. Earth dist.	-3104 Aug 19 j 04:03	3°☾13'42	45.90234 AU				
opposition	-3104 Aug 21 j 10:36	3°☾11'01	-17°-27'-54	conjunction	-3095 Feb 24 j 22:37	11°☾59'36	-16°-57'-24
direct	-3104 Nov 10 j 08:01	2°☾09'56		minimum elong	-3095 Feb 24 j 22:41	11°☾59'36	16°57'30
				max. Earth dist.	-3095 Feb 26 j 22:26	12°☾02'25	48.76690 AU
conjunction	-3103 Feb 16 j 11:02	3°☾41'21	-16°-46'-5	retrograde	-3095 Jun 08 j 06:10	13°☾33'00	
minimum elong	-3103 Feb 16 j 11:03	3°☾41'21	16°46'10	min. Earth dist.	-3095 Aug 29 j 04:06	12°☾33'34	46.90585 AU
max. Earth dist.	-3103 Feb 18 j 19:23	3°☾44'46	47.87879 AU	opposition	-3095 Aug 30 j 23:36	12°☾31'27	-17°-40'-11
retrograde	-3103 May 30 j 22:54	5°☾16'52		direct	-3095 Nov 19 j 21:40	11°☾31'11	
min. Earth dist.	-3103 Aug 20 j 13:07	4°☾17'04	46.03259 AU				
opposition	-3103 Aug 22 j 18:02	4°☾14'28	-17°-30'-31	conjunction	-3094 Feb 26 j 05:37	13°☾00'35	-16°-57'-25
direct	-3103 Nov 11 j 13:54	3°☾13'30		minimum elong	-3094 Feb 26 j 05:41	13°☾00'35	16°57'29
				max. Earth dist.	-3094 Feb 28 j 04:23	13°☾03'21	48.86179 AU
conjunction	-3102 Feb 17 j 19:04	4°☾44'41	-16°-48'-33	retrograde	-3094 Jun 09 j 10:35	14°☾33'47	
minimum elong	-3102 Feb 17 j 19:04	4°☾44'41	16°48'39	min. Earth dist.	-3094 Aug 30 j 09:59	13°☾34'28	46.99911 AU
max. Earth dist.	-3102 Feb 20 j 03:07	4°☾48'04	48.00608 AU	opposition	-3094 Sep 01 j 05:32	13°☾32'21	-17°-39'-57
retrograde	-3102 Jun 01 j 07:17	6°☾19'56		direct	-3094 Nov 21 j 05:44	12°☾32'10	
min. Earth dist.	-3102 Aug 21 j 21:52	5°☾20'10	46.15766 AU				
opposition	-3102 Aug 24 j 01:08	5°☾17'40	-17°-32'-49	conjunction	-3093 Feb 27 j 12:27	14°☾01'24	-16°-57'-6
direct	-3102 Nov 12 j 20:20	4°☾16'49		minimum elong	-3093 Feb 27 j 12:32	14°☾01'24	16°57'12
				max. Earth dist.	-3093 Mar 01 j 09:41	14°☾04'04	48.95349 AU
conjunction	-3101 Feb 19 j 02:53	5°☾47'46	-16°-50'-44		-3093 Apr 13 j 08:10	15°☾	
minimum elong	-3101 Feb 19 j 02:55	5°☾47'46	16°50'49	retrograde	-3093 Jun 10 j 18:13	15°☾34'24	
max. Earth dist.	-3101 Feb 21 j 08:28	5°☾51'00	48.12819 AU		-3093 Aug 09 j 10:04	15°☾☾	
retrograde	-3101 Jun 02 j 16:05	7°☾22'44		min. Earth dist.	-3093 Aug 31 j 17:50	14°☾35'06	47.08911 AU
min. Earth dist.	-3101 Aug 23 j 05:31	6°☾23'04	46.27747 AU	opposition	-3093 Sep 02 j 11:40	14°☾33'05	-17°-39'-23
opposition	-3101 Aug 25 j 08:13	6°☾20'35	-17°-34'-49	direct	-3093 Nov 22 j 12:00	13°☾33'00	
direct	-3101 Nov 14 j 02:08	5°☾19'50			-3092 Feb 27 j 08:09	15°☾	
conjunction	-3100 Feb 20 j 10:27	6°☾50'33	-16°-52'-36	conjunction	-3092 Feb 28 j 19:13	15°☾02'04	-16°-56'-30
minimum elong	-3100 Feb 20 j 10:28	6°☾50'33	16°52'42	minimum elong	-3092 Feb 28 j 19:19	15°☾02'04	16°56'35
max. Earth dist.	-3100 Feb 22 j 15:14	6°☾53'43	48.24496 AU	max. Earth dist.	-3092 Mar 01 j 16:27	15°☾04'43	49.04177 AU



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 20

Attention, astronomical year style is used: The year -3092 in astronomical counting style is the year 3093 BCE in historical counting style.

retrograde	-3092 Jun 11 j 02:18	16° $\approx$ 34'53		min. Earth dist.	-3084 Sep 09 j 06:17	23° $\approx$ 31'59	47.69449 AU
min. Earth dist.	-3092 Sep 01 j 00:46	15° $\approx$ 35'38	47.17522 AU	opposition	-3084 Sep 10 j 13:52	23° $\approx$ 30'28	-17°-21'-50
opposition	-3092 Sep 02 j 17:35	15° $\approx$ 33'40	-17°-38'-32	direct	-3084 Nov 30 j 17:03	22° $\approx$ 30'50	
	-3092 Oct 03 j 12:41	15° $\approx$					
direct	-3092 Nov 22 j 17:00	14° $\approx$ 33'41		conjunction	-3083 Mar 09 j 05:46	23° $\approx$ 58'30	-16°-38'-57
	-3091 Jan 10 j 22:35	15° $\approx$		minimum elong	-3083 Mar 09 j 05:53	23° $\approx$ 58'31	16°39'01
				max. Earth dist.	-3083 Mar 10 j 14:39	24° $\approx$ 00'24	49.63106 AU
conjunction	-3091 Mar 01 j 01:59	16° $\approx$ 02'35	-16°-55'-37	retrograde	-3083 Jun 20 j 05:52	25° $\approx$ 29'36	
minimum elong	-3091 Mar 01 j 02:03	16° $\approx$ 02'36	16°55'43	opposition	-3083 Sep 11 j 19:03	24° $\approx$ 29'00	-17°-18'-29
max. Earth dist.	-3091 Mar 02 j 20:51	16° $\approx$ 05'06	49.12600 AU	min. Earth dist.	-3083 Sep 10 j 13:10	24° $\approx$ 30'26	47.74235 AU
retrograde	-3091 Jun 12 j 12:02	17° $\approx$ 35'12		direct	-3083 Dec 01 j 23:17	23° $\approx$ 29'26	
min. Earth dist.	-3091 Sep 02 j 07:26	16° $\approx$ 36'02	47.25703 AU				
opposition	-3091 Sep 03 j 23:25	16° $\approx$ 34'07	-17°-37'-23	conjunction	-3082 Mar 10 j 12:00	24° $\approx$ 56'59	-16°-35'-37
direct	-3091 Nov 23 j 19:49	15° $\approx$ 34'12		minimum elong	-3082 Mar 10 j 12:08	24° $\approx$ 56'59	16°35'42
				max. Earth dist.	-3082 Mar 11 j 20:53	24° $\approx$ 58'53	49.67808 AU
conjunction	-3090 Mar 02 j 08:51	17° $\approx$ 02'57	-16°-54'-27	retrograde	-3082 Jun 21 j 12:06	26° $\approx$ 27'56	
minimum elong	-3090 Mar 02 j 08:58	17° $\approx$ 02'58	16°54'32	min. Earth dist.	-3082 Sep 11 j 18:50	25° $\approx$ 28'50	47.78722 AU
max. Earth dist.	-3090 Mar 04 j 02:59	17° $\approx$ 05'25	49.20546 AU	opposition	-3082 Sep 13 j 00:06	25° $\approx$ 27'26	-17°-14'-49
retrograde	-3090 Jun 13 j 16:35	18° $\approx$ 35'23		direct	-3082 Dec 03 j 04:39	24° $\approx$ 27'55	
min. Earth dist.	-3090 Sep 03 j 15:39	17° $\approx$ 36'11	47.33370 AU				
opposition	-3090 Sep 05 j 05:18	17° $\approx$ 34'23	-17°-35'-58	conjunction	-3081 Mar 11 j 18:00	25° $\approx$ 55'23	-16°-32'00
direct	-3090 Nov 25 j 03:03	16° $\approx$ 34'32		minimum elong	-3081 Mar 11 j 18:08	25° $\approx$ 55'24	16°32'04
				max. Earth dist.	-3081 Mar 13 j 00:45	25° $\approx$ 57'10	49.72212 AU
conjunction	-3089 Mar 03 j 15:40	18° $\approx$ 03'08	-16°-53'-2	retrograde	-3081 Jun 22 j 21:16	27° $\approx$ 26'13	
minimum elong	-3089 Mar 03 j 15:45	18° $\approx$ 03'08	16°53'07	min. Earth dist.	-3081 Sep 13 j 00:27	26° $\approx$ 27'11	47.82904 AU
max. Earth dist.	-3089 Mar 05 j 08:07	18° $\approx$ 05'30	49.27980 AU	opposition	-3081 Sep 14 j 05:03	26° $\approx$ 25'49	-17°-10'-53
retrograde	-3089 Jun 14 j 19:37	19° $\approx$ 35'20		direct	-3081 Dec 04 j 06:12	25° $\approx$ 26'22	
min. Earth dist.	-3089 Sep 04 j 21:45	18° $\approx$ 36'12	47.40504 AU				
opposition	-3089 Sep 06 j 10:53	18° $\approx$ 34'25	-17°-34'-18	conjunction	-3080 Mar 12 j 00:04	26° $\approx$ 53'47	-16°-28'-7
direct	-3089 Nov 26 j 11:53	17° $\approx$ 34'38		minimum elong	-3080 Mar 12 j 00:12	26° $\approx$ 53'47	16°28'12
				max. Earth dist.	-3080 Mar 13 j 06:30	26° $\approx$ 55'31	49.76284 AU
conjunction	-3088 Mar 03 j 22:14	19° $\approx$ 03'03	-16°-51'-21	retrograde	-3080 Jun 23 j 02:47	28° $\approx$ 24'30	
minimum elong	-3088 Mar 03 j 22:21	19° $\approx$ 03'03	16°51'27	min. Earth dist.	-3080 Sep 13 j 07:27	27° $\approx$ 25'28	47.86720 AU
max. Earth dist.	-3088 Mar 05 j 12:41	19° $\approx$ 05'18	49.34880 AU	opposition	-3080 Sep 14 j 10:03	27° $\approx$ 24'11	-17°-6'-40
retrograde	-3088 Jun 15 j 01:55	20° $\approx$ 35'04		direct	-3080 Dec 04 j 10:59	26° $\approx$ 24'49	
min. Earth dist.	-3088 Sep 05 j 05:28	19° $\approx$ 35'53	47.47126 AU				
opposition	-3088 Sep 06 j 16:37	19° $\approx$ 34'12	-17°-32'-21	conjunction	-3079 Mar 13 j 06:05	27° $\approx$ 52'10	-16°-23'-58
direct	-3088 Nov 26 j 18:30	18° $\approx$ 34'27		minimum elong	-3079 Mar 13 j 06:14	27° $\approx$ 52'10	16°24'02
				max. Earth dist.	-3079 Mar 14 j 11:05	27° $\approx$ 53'50	49.79976 AU
conjunction	-3087 Mar 05 j 04:45	20° $\approx$ 02'41	-16°-49'-25	retrograde	-3079 Jun 24 j 05:46	29° $\approx$ 22'48	
minimum elong	-3087 Mar 05 j 04:50	20° $\approx$ 02'42	16°49'30	opposition	-3079 Sep 15 j 14:56	28° $\approx$ 22'34	-17°-2'-12
max. Earth dist.	-3087 Mar 06 j 18:46	20° $\approx$ 04'54	49.41297 AU	min. Earth dist.	-3079 Sep 14 j 12:42	28° $\approx$ 23'49	47.90108 AU
retrograde	-3087 Jun 16 j 07:32	21° $\approx$ 34'30		direct	-3079 Dec 05 j 18:30	27° $\approx$ 23'16	
min. Earth dist.	-3087 Sep 06 j 12:00	20° $\approx$ 35'19	47.53267 AU				
opposition	-3087 Sep 07 j 22:05	20° $\approx$ 33'41	-17°-30'-9	conjunction	-3078 Mar 14 j 12:14	28° $\approx$ 50'33	-16°-19'-34
direct	-3087 Nov 28 j 00:58	19° $\approx$ 33'57		minimum elong	-3078 Mar 14 j 12:22	28° $\approx$ 50'34	16°19'39
				max. Earth dist.	-3078 Mar 15 j 15:09	28° $\approx$ 52'06	49.83193 AU
conjunction	-3086 Mar 06 j 11:09	21° $\approx$ 02'02	-16°-47'-13		-3078 May 10 j 21:57	0° $\approx$	
minimum elong	-3086 Mar 06 j 11:17	21° $\approx$ 02'02	16°47'19	retrograde	-3078 Jun 25 j 10:54	0° $\approx$ 21'06	
max. Earth dist.	-3086 Mar 07 j 22:59	21° $\approx$ 04'06	49.47272 AU		-3078 Aug 10 j 12:54	30° $\approx$	
retrograde	-3086 Jun 17 j 15:42	22° $\approx$ 33'38		opposition	-3078 Sep 16 j 19:49	29° $\approx$ 20'57	-16°-57'-28
min. Earth dist.	-3086 Sep 07 j 18:07	21° $\approx$ 34'27	47.59007 AU	min. Earth dist.	-3078 Sep 15 j 19:54	29° $\approx$ 22'05	47.93002 AU
opposition	-3086 Sep 09 j 03:21	21° $\approx$ 32'52	-17°-27'-40	direct	-3078 Dec 07 j 00:56	28° $\approx$ 21'42	
direct	-3086 Nov 29 j 04:18	20° $\approx$ 33'10					
				conjunction	-3077 Mar 15 j 18:28	29° $\approx$ 48'55	-16°-14'-57
conjunction	-3085 Mar 07 j 17:33	22° $\approx$ 01'05	-16°-44'-45	minimum elong	-3077 Mar 15 j 18:38	29° $\approx$ 48'56	16°15'00
minimum elong	-3085 Mar 07 j 17:39	22° $\approx$ 01'06	16°44'49	max. Earth dist.	-3077 Mar 16 j 20:43	29° $\approx$ 50'26	49.85901 AU
max. Earth dist.	-3085 Mar 09 j 04:59	22° $\approx$ 03'08	49.52862 AU		-3077 Mar 23 j 20:04	0° $\approx$	
retrograde	-3085 Jun 18 j 20:40	23° $\approx$ 32'30		retrograde	-3077 Jun 26 j 16:25	1° $\approx$ 19'22	
min. Earth dist.	-3085 Sep 09 j 01:15	22° $\approx$ 33'17	47.64383 AU	min. Earth dist.	-3077 Sep 17 j 01:50	0° $\approx$ 20'22	47.95352 AU
opposition	-3085 Sep 10 j 08:42	22° $\approx$ 31'47	-17°-24'-54	opposition	-3077 Sep 18 j 00:41	0° $\approx$ 19'17	-16°-52'-31
direct	-3085 Nov 30 j 10:25	21° $\approx$ 32'07			-3077 Oct 05 j 04:29	30° $\approx$	
				direct	-3077 Dec 08 j 06:34	29° $\approx$ 20'03	
conjunction	-3084 Mar 07 j 23:39	22° $\approx$ 59'54	-16°-42'00		-3076 Feb 08 j 18:25	0° $\approx$	
minimum elong	-3084 Mar 07 j 23:47	22° $\approx$ 59'54	16°42'05				
max. Earth dist.	-3084 Mar 09 j 09:57	23° $\approx$ 01'53	49.58133 AU	conjunction	-3076 Mar 16 j 00:20	0° $\approx$ 47'12	-16°-10'-5
retrograde	-3084 Jun 19 j 00:21	24° $\approx$ 31'08		minimum elong	-3076 Mar 16 j 00:28	0° $\approx$ 47'13	16°10'09



# Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 21

Attention, astronomical year style is used: The year -3076 in astronomical counting style is the year 3077 BCE in historical counting style.

max. Earth dist.	-3076 Mar 17 j 00:00	0°♂48'34	49.88074 AU	min. Earth dist.	-3068 Sep 25 j 06:01	8°♂59'00	47.97700 AU
retrograde	-3076 Jun 27 j 00:49	2°♂17'32		direct	-3068 Dec 16 j 02:21	7°♂59'15	
min. Earth dist.	-3076 Sep 17 j 07:57	1°♂18'31	47.97182 AU				
opposition	-3076 Sep 18 j 05:34	1°♂17'30	-16°-47'-20	conjunction	-3067 Mar 25 j 04:59	9°♂26'02	-15°-15'-8
direct	-3076 Dec 08 j 09:08	0°♂18'17		minimum elong	-3067 Mar 25 j 05:09	9°♂26'03	15°15'12
				max. Earth dist.	-3067 Mar 25 j 18:41	9°♂26'49	49.89644 AU
conjunction	-3075 Mar 17 j 06:24	1°♂45'22	-16°-5'00	retrograde	-3067 Jul 05 j 20:49	10°♂55'38	
minimum elong	-3075 Mar 17 j 06:35	1°♂45'22	16°05'04	opposition	-3067 Sep 26 j 22:35	9°♂55'53	-15°-49'00
max. Earth dist.	-3075 Mar 18 j 05:22	1°♂46'40	49.89733 AU	min. Earth dist.	-3067 Sep 26 j 11:22	9°♂56'25	47.96144 AU
retrograde	-3075 Jun 28 j 06:23	3°♂15'34		direct	-3067 Dec 17 j 08:25	8°♂56'44	
opposition	-3075 Sep 19 j 10:18	2°♂15'33	-16°-41'-54				
min. Earth dist.	-3075 Sep 18 j 14:44	2°♂16'29	47.98514 AU	conjunction	-3066 Mar 26 j 10:53	10°♂23'31	-15°-7'-46
direct	-3075 Dec 09 j 13:49	1°♂16'21		minimum elong	-3066 Mar 26 j 11:05	10°♂23'32	15°07'49
				max. Earth dist.	-3066 Mar 26 j 21:59	10°♂24'09	49.87965 AU
conjunction	-3074 Mar 18 j 12:25	2°♂43'21	-15°-59'-40	retrograde	-3066 Jul 07 j 04:43	11°♂53'06	
minimum elong	-3074 Mar 18 j 12:34	2°♂43'22	15°59'44	opposition	-3066 Sep 28 j 03:09	10°♂53'23	-15°-41'-14
max. Earth dist.	-3074 Mar 19 j 09:44	2°♂44'34	49.90941 AU	min. Earth dist.	-3066 Sep 27 j 17:22	10°♂53'51	47.94091 AU
retrograde	-3074 Jun 29 j 10:23	4°♂13'26		direct	-3066 Dec 18 j 11:06	9°♂54'14	
opposition	-3074 Sep 20 j 14:54	3°♂13'27	-16°-36'-13				
min. Earth dist.	-3074 Sep 19 j 19:36	3°♂14'22	47.99412 AU	conjunction	-3065 Mar 27 j 16:51	11°♂21'03	-15°00'-11
direct	-3074 Dec 10 j 19:33	2°♂14'14		minimum elong	-3065 Mar 27 j 17:02	11°♂21'04	15°00'14
				max. Earth dist.	-3065 Mar 28 j 02:57	11°♂21'37	49.85748 AU
conjunction	-3073 Mar 19 j 18:13	3°♂41'10	-15°-54'-5	retrograde	-3065 Jul 08 j 10:49	12°♂50'36	
minimum elong	-3073 Mar 19 j 18:24	3°♂41'11	15°54'09	opposition	-3065 Sep 29 j 07:41	11°♂50'54	-15°-33'-15
max. Earth dist.	-3073 Mar 20 j 13:55	3°♂42'18	49.91727 AU	min. Earth dist.	-3065 Sep 29 j 00:01	11°♂51'16	47.91477 AU
retrograde	-3073 Jun 30 j 13:54	5°♂11'09		direct	-3065 Dec 19 j 15:11	10°♂51'45	
opposition	-3073 Sep 21 j 19:32	4°♂11'10	-16°-30'-17				
min. Earth dist.	-3073 Sep 21 j 02:16	4°♂12'00	47.99929 AU	conjunction	-3064 Mar 27 j 22:46	12°♂18'35	-14°-52'-23
direct	-3073 Dec 12 j 02:22	3°♂11'57		minimum elong	-3064 Mar 27 j 22:58	12°♂18'36	14°52'26
				max. Earth dist.	-3064 Mar 28 j 06:59	12°♂19'03	49.82996 AU
conjunction	-3072 Mar 20 j 00:07	4°♂38'49	-15°-48'-15	retrograde	-3064 Jul 08 j 15:52	13°♂48'05	
minimum elong	-3072 Mar 20 j 00:17	4°♂38'50	15°48'18	opposition	-3064 Sep 29 j 12:07	12°♂48'24	-15°-25'-2
max. Earth dist.	-3072 Mar 20 j 19:37	4°♂39'56	49.92172 AU	min. Earth dist.	-3064 Sep 29 j 04:59	12°♂48'44	47.88326 AU
retrograde	-3072 Jun 30 j 17:46	6°♂08'42		direct	-3064 Dec 19 j 20:11	11°♂49'13	
min. Earth dist.	-3072 Sep 21 j 07:15	5°♂09'33	48.00110 AU				
opposition	-3072 Sep 22 j 00:03	5°♂08'45	-16°-24'-4	conjunction	-3063 Mar 29 j 04:35	13°♂16'04	-14°-44'-22
direct	-3072 Dec 12 j 09:07	4°♂09'32		minimum elong	-3063 Mar 29 j 04:46	13°♂16'05	14°44'24
				max. Earth dist.	-3063 Mar 29 j 10:46	13°♂16'25	49.79706 AU
conjunction	-3071 Mar 21 j 05:45	5°♂36'21	-15°-42'-9	retrograde	-3063 Jul 09 j 19:48	14°♂45'33	
minimum elong	-3071 Mar 21 j 05:56	5°♂36'22	15°42'12	opposition	-3063 Sep 30 j 16:40	13°♂45'51	-15°-16'-36
max. Earth dist.	-3071 Mar 21 j 23:07	5°♂37'20	49.92305 AU	min. Earth dist.	-3063 Sep 30 j 11:55	13°♂46'05	47.84664 AU
retrograde	-3071 Jul 02 j 02:29	7°♂06'09		direct	-3063 Dec 21 j 02:24	12°♂46'39	
opposition	-3071 Sep 23 j 04:38	6°♂06'13	-16°-17'-35				
min. Earth dist.	-3071 Sep 22 j 12:38	6°♂06'59	47.99992 AU	conjunction	-3062 Mar 30 j 10:35	14°♂13'30	-14°-36'-6
direct	-3071 Dec 13 j 10:48	5°♂07'00		minimum elong	-3062 Mar 30 j 10:48	14°♂13'31	14°36'09
				max. Earth dist.	-3062 Mar 30 j 16:12	14°♂13'49	49.75938 AU
conjunction	-3070 Mar 22 j 11:39	6°♂33'48	-15°-35'-47	retrograde	-3062 Jul 10 j 22:58	15°♂42'58	
minimum elong	-3070 Mar 22 j 11:49	6°♂33'48	15°35'49	opposition	-3062 Oct 01 j 20:55	14°♂43'15	-15°-7'-55
max. Earth dist.	-3070 Mar 23 j 04:43	6°♂34'46	49.92133 AU	min. Earth dist.	-3062 Oct 01 j 16:53	14°♂43'27	47.80539 AU
retrograde	-3070 Jul 03 j 08:54	8°♂03'31		direct	-3062 Dec 22 j 09:22	13°♂44'00	
opposition	-3070 Sep 24 j 09:07	7°♂03'37	-16°-10'-50				
min. Earth dist.	-3070 Sep 23 j 18:48	7°♂04'18	47.99561 AU	conjunction	-3061 Mar 31 j 16:23	15°♂10'53	-14°-27'-37
direct	-3070 Dec 14 j 14:21	6°♂04'25		minimum elong	-3061 Mar 31 j 16:34	15°♂10'53	14°27'39
				max. Earth dist.	-3061 Mar 31 j 19:35	15°♂11'04	49.71746 AU
conjunction	-3069 Mar 23 j 17:26	7°♂31'11	-15°-29'-9	retrograde	-3061 Jul 12 j 07:09	16°♂40'20	
minimum elong	-3069 Mar 23 j 17:37	7°♂31'12	15°29'13	opposition	-3061 Oct 03 j 01:20	15°♂40'36	-14°-58'-59
max. Earth dist.	-3069 Mar 24 j 09:13	7°♂32'05	49.91666 AU	min. Earth dist.	-3061 Oct 02 j 22:24	15°♂40'45	47.76032 AU
retrograde	-3069 Jul 04 j 12:37	9°♂00'51		direct	-3061 Dec 23 j 11:23	14°♂41'19	
opposition	-3069 Sep 25 j 13:35	8°♂01'00	-16°-3'-48				
min. Earth dist.	-3069 Sep 24 j 23:24	8°♂01'41	47.98815 AU	conjunction	-3060 Mar 31 j 22:05	16°♂08'14	-14°-18'-52
direct	-3069 Dec 15 j 20:02	7°♂01'49		minimum elong	-3060 Mar 31 j 22:18	16°♂08'14	14°18'55
				max. Earth dist.	-3060 Apr 01 j 01:02	16°♂08'24	49.67186 AU
conjunction	-3068 Mar 23 j 23:01	8°♂28'35	-15°-22'-16	retrograde	-3060 Jul 12 j 14:06	17°♂37'40	
minimum elong	-3068 Mar 23 j 23:13	8°♂28'36	15°22'19	opposition	-3060 Oct 03 j 05:48	16°♂37'56	-14°-49'-48
max. Earth dist.	-3068 Mar 24 j 13:10	8°♂29'24	49.90850 AU	min. Earth dist.	-3060 Oct 03 j 04:29	16°♂38'00	47.71176 AU
retrograde	-3068 Jul 04 j 16:26	9°♂58'13		direct	-3060 Dec 23 j 14:20	15°♂38'36	
opposition	-3068 Sep 25 j 18:12	8°♂58'25	-15°-56'-31				



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 22

Attention, astronomical year style is used: The year -3059 in astronomical counting style is the year 3060 BCE in historical counting style.

conjunction	-3059 Apr 02 j 03:55	17° <del>17</del> 05'34	-14°-9'-52	retrograde	-3051 Jul 21 j 12:20	26° <del>26</del> 17'36	
minimum elong	-3059 Apr 02 j 04:07	17° <del>17</del> 05'35	14°09'54	opposition	-3051 Oct 11 j 22:09	25° <del>25</del> 17'45	-13°-15'-26
max. Earth dist.	-3059 Apr 02 j 05:31	17° <del>17</del> 05'40	49.62320 AU	min. Earth dist.	-3051 Oct 12 j 07:30	25° <del>25</del> 17'18	47.11445 AU
retrograde	-3059 Jul 13 j 18:26	18° <del>18</del> 35'00		direct	-3050 Jan 01 j 12:39	24° <del>24</del> 18'03	
opposition	-3059 Oct 04 j 10:02	17° <del>17</del> 35'16	-14°-40'-20				
min. Earth dist.	-3059 Oct 04 j 08:46	17° <del>17</del> 35'20	47.66024 AU	conjunction	-3050 Apr 11 j 10:30	25° <del>25</del> 45'52	-12°-37'-44
direct	-3059 Dec 24 j 19:17	16° <del>16</del> 35'54		minimum elong	-3050 Apr 11 j 10:42	25° <del>25</del> 45'53	12°37'46
				max. Earth dist.	-3050 Apr 10 j 23:38	25° <del>25</del> 45'15	49.02026 AU
conjunction	-3058 Apr 03 j 09:47	18° <del>18</del> 02'56	-14°00'-37	retrograde	-3050 Jul 22 j 19:17	27° <del>27</del> 15'46	
minimum elong	-3058 Apr 03 j 09:59	18° <del>18</del> 02'57	14°00'40	opposition	-3050 Oct 13 j 02:51	26° <del>26</del> 15'52	-13°-3'-44
max. Earth dist.	-3058 Apr 03 j 09:46	18° <del>18</del> 02'56	49.57155 AU	min. Earth dist.	-3050 Oct 13 j 13:58	26° <del>26</del> 15'20	47.02519 AU
retrograde	-3058 Jul 14 j 21:31	19° <del>19</del> 32'24		direct	-3049 Jan 02 j 16:24	25° <del>25</del> 16'04	
opposition	-3058 Oct 05 j 14:34	18° <del>18</del> 32'40	-14°-30'-36				
min. Earth dist.	-3058 Oct 05 j 15:08	18° <del>18</del> 32'38	47.60584 AU	conjunction	-3049 Apr 12 j 16:38	26° <del>26</del> 44'00	-12°-26'-19
direct	-3058 Dec 26 j 02:18	17° <del>17</del> 33'16		minimum elong	-3049 Apr 12 j 16:51	26° <del>26</del> 44'01	12°26'21
				max. Earth dist.	-3049 Apr 12 j 04:13	26° <del>26</del> 43'17	48.93059 AU
conjunction	-3057 Apr 04 j 15:39	19° <del>19</del> 00'23	-13°-51'-6	retrograde	-3049 Jul 24 j 01:44	28° <del>28</del> 13'58	
minimum elong	-3057 Apr 04 j 15:52	19° <del>19</del> 00'24	13°51'08	opposition	-3049 Oct 14 j 07:25	27° <del>27</del> 14'00	-12°-51'-47
max. Earth dist.	-3057 Apr 04 j 15:33	19° <del>19</del> 00'23	49.51709 AU	min. Earth dist.	-3049 Oct 14 j 18:46	27° <del>27</del> 13'27	46.93213 AU
retrograde	-3057 Jul 16 j 00:50	20° <del>20</del> 29'54		direct	-3048 Jan 03 j 20:15	26° <del>26</del> 14'06	
opposition	-3057 Oct 06 j 18:55	19° <del>19</del> 30'10	-14°-20'-37				
min. Earth dist.	-3057 Oct 06 j 19:53	19° <del>19</del> 30'07	47.54839 AU	conjunction	-3048 Apr 12 j 22:50	27° <del>27</del> 42'09	-12°-14'-39
direct	-3057 Dec 27 j 09:12	18° <del>18</del> 30'45		minimum elong	-3048 Apr 12 j 23:02	27° <del>27</del> 42'10	12°14'40
				max. Earth dist.	-3048 Apr 12 j 08:46	27° <del>27</del> 41'21	48.83728 AU
conjunction	-3056 Apr 04 j 21:28	19° <del>19</del> 57'57	-13°-41'-20	retrograde	-3048 Jul 24 j 05:53	29° <del>29</del> 12'11	
minimum elong	-3056 Apr 04 j 21:40	19° <del>19</del> 57'58	13°41'23	opposition	-3048 Oct 14 j 12:08	28° <del>28</del> 12'09	-12°-39'-34
max. Earth dist.	-3056 Apr 04 j 19:08	19° <del>19</del> 57'49	49.45956 AU	min. Earth dist.	-3048 Oct 15 j 01:25	28° <del>28</del> 11'31	46.83579 AU
retrograde	-3056 Jul 16 j 08:26	21° <del>21</del> 27'31		direct	-3047 Jan 04 j 02:52	27° <del>27</del> 12'10	
opposition	-3056 Oct 06 j 23:20	20° <del>20</del> 27'48	-14°-10'-21				
min. Earth dist.	-3056 Oct 07 j 01:32	20° <del>20</del> 27'42	47.48776 AU	conjunction	-3047 Apr 14 j 05:11	28° <del>28</del> 40'22	-12°-2'-44
direct	-3056 Dec 27 j 11:47	19° <del>19</del> 28'23		minimum elong	-3047 Apr 14 j 05:24	28° <del>28</del> 40'23	12°02'45
				max. Earth dist.	-3047 Apr 13 j 14:59	28° <del>28</del> 39'33	48.74097 AU
conjunction	-3055 Apr 06 j 03:29	20° <del>20</del> 55'41	-13°-31'-19		-3047 Jun 23 j 22:12	0° <del>0</del> 0'	
minimum elong	-3055 Apr 06 j 03:42	20° <del>20</del> 55'41	13°31'20	retrograde	-3047 Jul 25 j 08:52	0° <del>0</del> 10'30	
max. Earth dist.	-3055 Apr 06 j 00:36	20° <del>20</del> 55'31	49.39838 AU		-3047 Aug 26 j 01:15	30° <del>30</del> 12'11	
retrograde	-3055 Jul 17 j 15:36	22° <del>22</del> 25'19		opposition	-3047 Oct 15 j 16:50	29° <del>29</del> 10'25	-12°-27'-4
opposition	-3055 Oct 08 j 03:52	21° <del>21</del> 25'35	-13°-59'-51	min. Earth dist.	-3047 Oct 16 j 06:25	29° <del>29</del> 09'46	46.73645 AU
min. Earth dist.	-3055 Oct 08 j 07:51	21° <del>21</del> 25'24	47.42300 AU	direct	-3046 Jan 05 j 10:36	28° <del>28</del> 10'21	
direct	-3055 Dec 28 j 15:04	20° <del>20</del> 26'09					
				conjunction	-3046 Apr 15 j 11:31	29° <del>29</del> 38'42	-11°-50'-32
conjunction	-3054 Apr 07 j 09:38	21° <del>21</del> 53'33	-13°-21'-3	minimum elong	-3046 Apr 15 j 11:43	29° <del>29</del> 38'43	11°50'33
minimum elong	-3054 Apr 07 j 09:50	21° <del>21</del> 53'34	13°21'05	max. Earth dist.	-3046 Apr 14 j 19:06	29° <del>29</del> 37'46	48.64183 AU
max. Earth dist.	-3054 Apr 07 j 04:57	21° <del>21</del> 53'18	49.33289 AU		-3046 May 01 j 02:18	0° <del>0</del> 0'	
retrograde	-3054 Jul 18 j 22:36	23° <del>23</del> 23'14		retrograde	-3046 Jul 26 j 15:59	1° <del>1</del> 08'58	
opposition	-3054 Oct 09 j 08:15	22° <del>22</del> 23'31	-13°-49'-6	opposition	-3046 Oct 16 j 21:35	0° <del>0</del> 08'50	-12°-14'-18
min. Earth dist.	-3054 Oct 09 j 12:53	22° <del>22</del> 23'18	47.35359 AU	min. Earth dist.	-3046 Oct 17 j 12:16	0° <del>0</del> 08'08	46.63448 AU
direct	-3054 Dec 29 j 18:51	21° <del>21</del> 24'01			-3046 Oct 24 j 13:18	30° <del>30</del> 12'11	
				direct	-3045 Jan 06 j 14:10	29° <del>29</del> 08'42	
conjunction	-3053 Apr 08 j 15:48	22° <del>22</del> 51'34	-13°-10'-34		-3045 Mar 19 j 20:56	0° <del>0</del> 0'	
minimum elong	-3053 Apr 08 j 16:01	22° <del>22</del> 51'35	13°10'35				
max. Earth dist.	-3053 Apr 08 j 09:03	22° <del>22</del> 51'11	49.26233 AU	conjunction	-3045 Apr 16 j 18:02	0° <del>0</del> 37'14	-11°-38'-5
retrograde	-3053 Jul 20 j 03:21	24° <del>24</del> 21'18		minimum elong	-3045 Apr 16 j 18:14	0° <del>0</del> 37'15	11°38'07
opposition	-3053 Oct 10 j 12:58	23° <del>23</del> 21'33	-13°-38'-7	max. Earth dist.	-3045 Apr 16 j 01:20	0° <del>0</del> 36'17	48.53998 AU
min. Earth dist.	-3053 Oct 10 j 20:01	23° <del>23</del> 21'13	47.27902 AU	retrograde	-3045 Jul 27 j 22:51	2° <del>2</del> 07'38	
direct	-3053 Dec 31 j 00:30	22° <del>22</del> 22'00		opposition	-3045 Oct 18 j 02:31	1° <del>1</del> 07'29	-12°-1'-15
				min. Earth dist.	-3045 Oct 18 j 18:30	1° <del>1</del> 06'42	46.52967 AU
conjunction	-3052 Apr 08 j 21:56	23° <del>23</del> 49'38	-12°-59'-51	direct	-3044 Jan 07 j 18:20	0° <del>0</del> 07'17	
minimum elong	-3052 Apr 08 j 22:08	23° <del>23</del> 49'39	12°59'53	max. Earth dist.	-3044 Apr 16 j 06:24	1° <del>1</del> 34'59	48.43537 AU
max. Earth dist.	-3052 Apr 08 j 14:24	23° <del>23</del> 49'13	49.18665 AU				
retrograde	-3052 Jul 20 j 05:40	25° <del>25</del> 19'26		conjunction	-3044 Apr 17 j 00:24	1° <del>1</del> 36'01	-11°-25'-22
opposition	-3052 Oct 10 j 17:36	24° <del>24</del> 19'39	-13°-26'-54	minimum elong	-3044 Apr 17 j 00:37	1° <del>1</del> 36'02	11°25'23
min. Earth dist.	-3052 Oct 11 j 01:23	24° <del>24</del> 19'16	47.19916 AU	retrograde	-3044 Jul 28 j 06:54	3° <del>3</del> 06'35	
direct	-3052 Dec 31 j 08:28	23° <del>23</del> 20'01		opposition	-3044 Oct 18 j 07:26	2° <del>2</del> 06'24	-11°-47'-56
				min. Earth dist.	-3044 Oct 18 j 23:44	2° <del>2</del> 05'37	46.42182 AU
conjunction	-3051 Apr 10 j 04:07	24° <del>24</del> 47'45	-12°-48'-55	direct	-3043 Jan 07 j 21:55	1° <del>1</del> 06'09	
minimum elong	-3051 Apr 10 j 04:21	24° <del>24</del> 47'46	12°48'56	max. Earth dist.	-3043 Apr 17 j 11:22	2° <del>2</del> 33'59	48.32721 AU
max. Earth dist.	-3051 Apr 09 j 17:57	24° <del>24</del> 47'10	49.10583 AU				



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 23

Attention, astronomical year style is used: The year -3043 in astronomical counting style is the year 3044 BCE in historical counting style.

conjunction	-3043 Apr 18 j 07:08	2°♊35'07	-11°-12'-24	opposition	-3035 Oct 27 j 07:55	11°♊08'41	-9°-36'-26
minimum elong	-3043 Apr 18 j 07:20	2°♊35'08	11°12'25	min. Earth dist.	-3035 Oct 28 j 12:40	11°♊07'16	45.24863 AU
retrograde	-3043 Jul 29 j 13:22	4°♊05'51		direct	-3034 Jan 17 j 04:14	10°♊07'24	
opposition	-3043 Oct 19 j 12:27	3°♊05'39	-11°-34'-21	max. Earth dist.	-3034 Apr 26 j 15:32	11°♊36'38	47.14893 AU
min. Earth dist.	-3043 Oct 20 j 07:06	3°♊04'45	46.31017 AU				
direct	-3042 Jan 09 j 03:16	2°♊05'20		conjunction	-3034 Apr 28 j 00:04	11°♊38'33	-9°-4'-30
				minimum elong	-3034 Apr 28 j 00:15	11°♊38'33	9°04'30
conjunction	-3042 Apr 19 j 14:07	3°♊34'33	-10°-59'-10	retrograde	-3034 Aug 08 j 00:30	13°♊11'00	
minimum elong	-3042 Apr 19 j 14:19	3°♊34'34	10°59'11	opposition	-3034 Oct 28 j 13:46	12°♊10'00	-9°-20'-27
max. Earth dist.	-3042 Apr 18 j 17:40	3°♊33'22	48.21495 AU	min. Earth dist.	-3034 Oct 29 j 18:48	12°♊08'34	45.09949 AU
retrograde	-3042 Jul 30 j 17:07	5°♊05'28		direct	-3033 Jan 18 j 07:44	11°♊08'34	
opposition	-3042 Oct 20 j 17:35	4°♊05'13	-11°-20'-30	max. Earth dist.	-3033 Apr 27 j 21:44	12°♊38'01	46.99984 AU
min. Earth dist.	-3042 Oct 21 j 12:51	4°♊04'17	46.19394 AU				
direct	-3041 Jan 10 j 11:08	3°♊04'51		conjunction	-3033 Apr 29 j 07:37	12°♊40'01	-8°-48'-59
				minimum elong	-3033 Apr 29 j 07:48	12°♊40'02	8°48'58
conjunction	-3041 Apr 20 j 20:55	4°♊34'17	-10°-45'-42	retrograde	-3033 Aug 09 j 09:41	14°♊12'43	
minimum elong	-3041 Apr 20 j 21:06	4°♊34'18	10°45'43	opposition	-3033 Oct 29 j 19:51	13°♊11'36	-9°-4'-12
max. Earth dist.	-3041 Apr 19 j 21:47	4°♊32'57	48.09780 AU	min. Earth dist.	-3033 Oct 31 j 02:43	13°♊10'05	44.94766 AU
retrograde	-3041 Jul 31 j 23:55	6°♊05'24		direct	-3032 Jan 19 j 12:36	12°♊10'03	
opposition	-3041 Oct 21 j 22:52	5°♊05'06	-11°-6'-25	max. Earth dist.	-3032 Apr 28 j 05:15	13°♊39'48	46.84816 AU
min. Earth dist.	-3041 Oct 22 j 19:54	5°♊04'05	46.07273 AU				
direct	-3040 Jan 11 j 16:09	4°♊04'38		conjunction	-3032 Apr 29 j 15:27	13°♊41'49	-8°-33'-11
max. Earth dist.	-3040 Apr 20 j 04:06	5°♊32'55	47.97546 AU	minimum elong	-3032 Apr 29 j 15:38	13°♊41'50	8°33'12
				retrograde	-3032 Aug 09 j 15:02	15°♊14'46	
conjunction	-3040 Apr 21 j 04:04	5°♊34'18	-10°-32'00	opposition	-3032 Oct 30 j 01:50	14°♊13'34	-8°-47'-38
minimum elong	-3040 Apr 21 j 04:17	5°♊34'19	10°32'00	min. Earth dist.	-3032 Oct 31 j 08:54	14°♊12'02	44.79294 AU
retrograde	-3040 Aug 01 j 07:46	7°♊05'36		direct	-3031 Jan 19 j 20:58	13°♊11'53	
opposition	-3040 Oct 22 j 04:13	6°♊05'14	-10°-52'-5	max. Earth dist.	-3031 Apr 29 j 10:53	14°♊41'50	46.69325 AU
min. Earth dist.	-3040 Oct 23 j 03:03	6°♊04'07	45.94623 AU				
direct	-3039 Jan 11 j 20:10	5°♊04'39		conjunction	-3031 Apr 30 j 23:25	14°♊44'00	-8°-17'-7
max. Earth dist.	-3039 Apr 21 j 09:10	6°♊33'03	47.84809 AU	minimum elong	-3031 Apr 30 j 23:36	14°♊44'01	8°17'06
				retrograde	-3031 Aug 10 j 21:38	16°♊17'15	
conjunction	-3039 Apr 22 j 11:11	6°♊34'33	-10°-18'-3	opposition	-3031 Oct 31 j 08:06	15°♊15'57	-8°-30'-48
minimum elong	-3039 Apr 22 j 11:23	6°♊34'34	10°18'04	min. Earth dist.	-3031 Nov 01 j 16:57	15°♊14'19	44.63478 AU
retrograde	-3039 Aug 02 j 16:53	8°♊06'01		direct	-3030 Jan 21 j 03:57	14°♊14'08	
opposition	-3039 Oct 23 j 09:34	7°♊05'34	-10°-37'-29	max. Earth dist.	-3030 Apr 30 j 18:40	15°♊44'24	46.53439 AU
min. Earth dist.	-3039 Oct 24 j 09:02	7°♊04'26	45.81477 AU				
direct	-3038 Jan 12 j 23:15	6°♊04'51		conjunction	-3030 May 02 j 07:44	15°♊46'36	-8°00'-46
				minimum elong	-3030 May 02 j 07:55	15°♊46'37	8°00'46
conjunction	-3038 Apr 23 j 18:27	7°♊35'00	-10°-3'-52	retrograde	-3030 Aug 12 j 04:32	17°♊20'09	
minimum elong	-3038 Apr 23 j 18:40	7°♊35'01	10°03'52	opposition	-3030 Nov 01 j 14:30	16°♊18'45	-8°-13'-41
max. Earth dist.	-3038 Apr 22 j 14:30	7°♊33'22	47.71573 AU	min. Earth dist.	-3030 Nov 03 j 00:50	16°♊17'03	44.47232 AU
retrograde	-3038 Aug 03 j 22:31	9°♊06'38		direct	-3029 Jan 22 j 10:52	15°♊16'47	
opposition	-3038 Oct 24 j 15:03	8°♊06'05	-10°-22'-38	max. Earth dist.	-3029 May 02 j 00:54	16°♊47'17	46.37113 AU
min. Earth dist.	-3038 Oct 25 j 16:49	8°♊04'49	45.67869 AU				
direct	-3037 Jan 14 j 06:37	7°♊05'14		conjunction	-3029 May 03 j 16:06	16°♊49'37	-7°-44'-10
max. Earth dist.	-3037 Apr 23 j 21:22	8°♊33'57	47.57916 AU	minimum elong	-3029 May 03 j 16:17	16°♊49'38	7°44'09
				retrograde	-3029 Aug 13 j 14:50	18°♊23'29	
conjunction	-3037 Apr 25 j 01:47	8°♊35'37	-9°-49'-25	opposition	-3029 Nov 02 j 21:03	17°♊21'58	-7°-56'-17
minimum elong	-3037 Apr 25 j 01:59	8°♊35'37	9°49'25	min. Earth dist.	-3029 Nov 04 j 08:08	17°♊20'13	44.30529 AU
retrograde	-3037 Aug 05 j 01:53	10°♊07'25		direct	-3028 Jan 23 j 14:53	16°♊19'51	
opposition	-3037 Oct 25 j 20:33	9°♊06'45	-10°-7'-31	max. Earth dist.	-3028 May 02 j 07:36	17°♊50'35	46.20294 AU
min. Earth dist.	-3037 Oct 26 j 22:42	9°♊05'29	45.53862 AU				
direct	-3036 Jan 15 j 15:55	8°♊05'46		conjunction	-3028 May 04 j 00:36	17°♊53'02	-7°-27'-18
max. Earth dist.	-3036 Apr 24 j 02:11	9°♊34'36	47.43884 AU	minimum elong	-3028 May 04 j 00:46	17°♊53'03	7°27'17
				retrograde	-3028 Aug 13 j 23:38	19°♊27'13	
conjunction	-3036 Apr 25 j 08:55	9°♊36'24	-9°-34'-43	opposition	-3028 Nov 03 j 03:55	18°♊25'34	-7°-38'-36
minimum elong	-3036 Apr 25 j 09:08	9°♊36'24	9°34'43	min. Earth dist.	-3028 Nov 04 j 17:22	18°♊23'42	44.13330 AU
retrograde	-3036 Aug 05 j 08:30	11°♊08'24		direct	-3027 Jan 23 j 21:35	17°♊23'16	
opposition	-3036 Oct 26 j 02:13	10°♊07'37	-9°-52'-7	max. Earth dist.	-3027 May 03 j 15:35	18°♊54'20	46.02997 AU
min. Earth dist.	-3036 Oct 27 j 05:49	10°♊06'16	45.39518 AU				
direct	-3035 Jan 15 j 21:54	9°♊06'29		conjunction	-3027 May 05 j 09:27	18°♊56'51	-7°-10'-11
max. Earth dist.	-3035 Apr 25 j 09:26	10°♊35'32	47.29526 AU	minimum elong	-3027 May 05 j 09:37	18°♊56'51	7°10'10
				retrograde	-3027 Aug 15 j 06:35	20°♊31'19	
conjunction	-3035 Apr 26 j 16:30	10°♊37'21	-9°-19'-44	opposition	-3027 Nov 04 j 10:39	19°♊29'31	-7°-20'-39
minimum elong	-3035 Apr 26 j 16:41	10°♊37'22	9°19'44	min. Earth dist.	-3027 Nov 06 j 00:38	19°♊27'37	43.95660 AU
retrograde	-3035 Aug 06 j 14:45	12°♊09'35		direct	-3026 Jan 25 j 07:09	18°♊27'02	



Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 24

Attention, astronomical year style is used: The year -3026 in astronomical counting style is the year 3027 BCE in historical counting style.

max. Earth dist.	-3026 May 04 j 21:47	19° $\Upsilon$ 58'19	45.85239 AU	minimum elong	-3018 May 15 j 23:27	28° $\Upsilon$ 50'00	4°23'28
					-3018 Jul 06 j 19:40	0° $\mathcal{B}$	
conjunction	-3026 May 06 j 18:20	20° $\Upsilon$ 01'00	-6°-52'-47	retrograde	-3018 Aug 25 j 16:58	0° $\mathcal{B}$ 28'03	
minimum elong	-3026 May 06 j 18:29	20° $\Upsilon$ 01'01	6°52'47		-3018 Oct 15 j 03:51	30° $\mathcal{R}\Upsilon$	
retrograde	-3026 Aug 16 j 14:21	21° $\Upsilon$ 35'48		opposition	-3018 Nov 14 j 08:06	29° $\Upsilon$ 24'49	-4°-25'-37
opposition	-3026 Nov 05 j 17:43	20° $\Upsilon$ 33'51	-7°-2'-25	min. Earth dist.	-3018 Nov 16 j 08:14	29° $\Upsilon$ 22'20	42.22860 AU
min. Earth dist.	-3026 Nov 07 j 09:36	20° $\Upsilon$ 31'50	43.77571 AU	direct	-3017 Feb 04 j 03:14	28° $\Upsilon$ 20'31	
direct	-3025 Jan 26 j 15:04	19° $\Upsilon$ 31'09		max. Earth dist.	-3017 May 15 j 03:54	29° $\Upsilon$ 55'23	44.12147 AU
max. Earth dist.	-3025 May 06 j 06:27	21° $\Upsilon$ 02'48	45.67079 AU				
				conjunction	-3017 May 17 j 09:55	29° $\Upsilon$ 58'45	-4°-3'-34
conjunction	-3025 May 08 j 03:17	21° $\Upsilon$ 05'31	-6°-35'-7	minimum elong	-3017 May 17 j 10:01	29° $\Upsilon$ 58'46	4°03'32
minimum elong	-3025 May 08 j 03:27	21° $\Upsilon$ 05'31	6°35'07		-3017 May 18 j 05:46	0° $\mathcal{B}$	
retrograde	-3025 Aug 17 j 20:51	22° $\Upsilon$ 40'39		retrograde	-3017 Aug 27 j 05:13	1° $\mathcal{B}$ 37'17	
opposition	-3025 Nov 07 j 00:54	21° $\Upsilon$ 38'32	-6°-43'-53	opposition	-3017 Nov 15 j 16:56	0° $\mathcal{B}$ 33'53	-4°-4'-38
min. Earth dist.	-3025 Nov 08 j 17:44	21° $\Upsilon$ 36'28	43.59105 AU	min. Earth dist.	-3017 Nov 17 j 17:25	0° $\mathcal{B}$ 31'22	42.02216 AU
direct	-3024 Jan 27 j 23:42	20° $\Upsilon$ 35'38			-3017 Dec 14 j 09:34	30° $\mathcal{R}\Upsilon$	
max. Earth dist.	-3024 May 06 j 13:45	22° $\Upsilon$ 07'34	45.48587 AU	direct	-3016 Feb 05 j 12:21	29° $\Upsilon$ 29'21	
					-3016 Mar 29 j 02:40	0° $\mathcal{B}$	
conjunction	-3024 May 08 j 12:20	22° $\Upsilon$ 10'23	-6°-17'-11	max. Earth dist.	-3016 May 15 j 12:21	1° $\mathcal{B}$ 04'36	43.91375 AU
minimum elong	-3024 May 08 j 12:29	22° $\Upsilon$ 10'24	6°17'10				
retrograde	-3024 Aug 18 j 07:24	23° $\Upsilon$ 45'53		conjunction	-3016 May 17 j 20:53	1° $\mathcal{B}$ 08'09	-3°-43'-20
opposition	-3024 Nov 07 j 08:02	22° $\Upsilon$ 43'36	-6°-25'-3	minimum elong	-3016 May 17 j 20:59	1° $\mathcal{B}$ 08'10	3°43'18
min. Earth dist.	-3024 Nov 09 j 01:31	22° $\Upsilon$ 41'30	43.40347 AU	retrograde	-3016 Aug 27 j 17:07	2° $\mathcal{B}$ 47'10	
direct	-3023 Jan 28 j 04:45	21° $\Upsilon$ 40'29		opposition	-3016 Nov 16 j 01:58	1° $\mathcal{B}$ 43'33	-3°-43'-21
max. Earth dist.	-3023 May 07 j 21:56	23° $\Upsilon$ 12'46	45.29803 AU	min. Earth dist.	-3016 Nov 18 j 04:41	1° $\mathcal{B}$ 40'55	41.81156 AU
				direct	-3015 Feb 05 j 21:51	0° $\mathcal{B}$ 38'46	
conjunction	-3023 May 09 j 21:42	23° $\Upsilon$ 15'41	-5°-58'-57	max. Earth dist.	-3015 May 16 j 23:15	2° $\mathcal{B}$ 14'33	43.70183 AU
minimum elong	-3023 May 09 j 21:51	23° $\Upsilon$ 15'41	5°58'56				
retrograde	-3023 Aug 19 j 18:39	24° $\Upsilon$ 51'32		conjunction	-3015 May 19 j 08:16	2° $\mathcal{B}$ 18'09	-3°-22'-50
opposition	-3023 Nov 08 j 15:37	23° $\Upsilon$ 49'05	-6°-5'-55	minimum elong	-3015 May 19 j 08:21	2° $\mathcal{B}$ 18'10	3°22'48
min. Earth dist.	-3023 Nov 10 j 10:51	23° $\Upsilon$ 46'53	43.21327 AU	retrograde	-3015 Aug 29 j 01:24	3° $\mathcal{B}$ 57'39	
direct	-3022 Jan 29 j 10:30	22° $\Upsilon$ 45'46		opposition	-3015 Nov 17 j 11:20	2° $\mathcal{B}$ 53'49	-3°-21'-47
max. Earth dist.	-3022 May 09 j 07:00	24° $\Upsilon$ 18'28	45.10790 AU	min. Earth dist.	-3015 Nov 19 j 14:47	2° $\mathcal{B}$ 51'08	41.59675 AU
				direct	-3014 Feb 07 j 09:42	1° $\mathcal{B}$ 48'46	
conjunction	-3022 May 11 j 07:11	24° $\Upsilon$ 21'25	-5°-40'-27	max. Earth dist.	-3014 May 18 j 08:23	3° $\mathcal{B}$ 24'57	43.48589 AU
minimum elong	-3022 May 11 j 07:19	24° $\Upsilon$ 21'25	5°40'25				
retrograde	-3022 Aug 21 j 03:40	25° $\Upsilon$ 57'40		conjunction	-3014 May 20 j 19:41	3° $\mathcal{B}$ 28'43	-3°-2'-2
opposition	-3022 Nov 09 j 23:12	24° $\Upsilon$ 55'03	-5°-46'-28	minimum elong	-3014 May 20 j 19:46	3° $\mathcal{B}$ 28'44	3°02'00
min. Earth dist.	-3022 Nov 11 j 18:14	24° $\Upsilon$ 52'51	43.02094 AU	retrograde	-3014 Aug 30 j 11:22	5° $\mathcal{B}$ 08'43	
direct	-3021 Jan 30 j 19:07	23° $\Upsilon$ 51'32		opposition	-3014 Nov 18 j 20:50	4° $\mathcal{B}$ 04'39	-2°-59'-54
max. Earth dist.	-3021 May 10 j 14:39	25° $\Upsilon$ 24'35	44.91569 AU	min. Earth dist.	-3014 Nov 21 j 01:31	4° $\mathcal{B}$ 01'53	41.37832 AU
				direct	-3013 Feb 08 j 19:17	2° $\mathcal{B}$ 59'19	
conjunction	-3021 May 12 j 16:47	25° $\Upsilon$ 27'39	-5°-21'-39	max. Earth dist.	-3013 May 19 j 19:18	4° $\mathcal{B}$ 36'00	43.26636 AU
minimum elong	-3021 May 12 j 16:55	25° $\Upsilon$ 27'40	5°21'38				
retrograde	-3021 Aug 22 j 11:49	27° $\Upsilon$ 04'19		conjunction	-3013 May 22 j 07:29	4° $\mathcal{B}$ 39'51	-2°-40'-58
opposition	-3021 Nov 11 j 07:08	26° $\Upsilon$ 01'33	-5°-26'-43	minimum elong	-3013 May 22 j 07:33	4° $\mathcal{B}$ 39'51	2°40'57
min. Earth dist.	-3021 Nov 13 j 03:45	25° $\Upsilon$ 59'16	42.82672 AU	retrograde	-3013 Aug 31 j 22:23	6° $\mathcal{B}$ 20'22	
direct	-3020 Feb 01 j 04:04	24° $\Upsilon$ 57'50		opposition	-3013 Nov 20 j 06:42	5° $\mathcal{B}$ 16'03	-2°-37'-42
max. Earth dist.	-3020 May 11 j 00:38	26° $\Upsilon$ 31'23	44.72147 AU	min. Earth dist.	-3013 Nov 22 j 13:00	5° $\mathcal{B}$ 13'12	41.15667 AU
				direct	-3012 Feb 10 j 04:02	4° $\mathcal{B}$ 10'25	
conjunction	-3020 May 13 j 02:39	26° $\Upsilon$ 34'28	-5°-2'-33	max. Earth dist.	-3012 May 20 j 06:12	5° $\mathcal{B}$ 47'38	43.04404 AU
minimum elong	-3020 May 13 j 02:47	26° $\Upsilon$ 34'29	5°02'31				
retrograde	-3020 Aug 22 j 18:30	28° $\Upsilon$ 11'34		conjunction	-3012 May 22 j 19:20	5° $\mathcal{B}$ 51'33	-2°-19'-37
opposition	-3020 Nov 11 j 15:15	27° $\Upsilon$ 08'39	-5°-6'-40	minimum elong	-3012 May 22 j 19:24	5° $\mathcal{B}$ 51'34	2°19'35
min. Earth dist.	-3020 Nov 13 j 12:32	27° $\Upsilon$ 06'19	42.63023 AU	retrograde	-3012 Sep 01 j 11:34	7° $\mathcal{B}$ 32'37	
direct	-3019 Feb 01 j 14:27	26° $\Upsilon$ 04'45		opposition	-3012 Nov 20 j 16:42	6° $\mathcal{B}$ 28'03	-2°-15'-13
max. Earth dist.	-3019 May 12 j 08:47	27° $\Upsilon$ 38'40	44.52482 AU	min. Earth dist.	-3012 Nov 22 j 23:02	6° $\mathcal{B}$ 25'10	40.93251 AU
				direct	-3011 Feb 10 j 12:36	5° $\mathcal{B}$ 22'07	
conjunction	-3019 May 14 j 12:47	27° $\Upsilon$ 41'54	-4°-43'-10	max. Earth dist.	-3011 May 21 j 16:44	6° $\mathcal{B}$ 59'49	42.81920 AU
minimum elong	-3019 May 14 j 12:55	27° $\Upsilon$ 41'55	4°43'09				
retrograde	-3019 Aug 24 j 05:38	29° $\Upsilon$ 19'28		conjunction	-3011 May 24 j 07:37	7° $\mathcal{B}$ 03'53	-1°-57'-59
opposition	-3019 Nov 12 j 23:25	28° $\Upsilon$ 16'24	-4°-46'-17	minimum elong	-3011 May 24 j 07:40	7° $\mathcal{B}$ 03'53	1°57'56
min. Earth dist.	-3019 Nov 14 j 21:34	28° $\Upsilon$ 14'01	42.43115 AU	retrograde	-3011 Sep 03 j 00:13	8° $\mathcal{B}$ 45'29	
direct	-3018 Feb 02 j 20:27	27° $\Upsilon$ 12'18		opposition	-3011 Nov 22 j 03:03	7° $\mathcal{B}$ 40'40	-1°-52'-24
max. Earth dist.	-3018 May 13 j 18:15	28° $\Upsilon$ 46'42	44.32497 AU	min. Earth dist.	-3011 Nov 24 j 11:15	7° $\mathcal{B}$ 37'41	40.70632 AU
				direct	-3010 Feb 11 j 23:13	6° $\mathcal{B}$ 34'27	
conjunction	-3018 May 15 j 23:20	28° $\Upsilon$ 50'00	-4°-23'-31	max. Earth dist.	-3010 May 23 j 05:33	8° $\mathcal{B}$ 12'48	42.59261 AU



# Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 25

Attention, astronomical year style is used: The year -3010 in astronomical counting style is the year 3011 BCE in historical counting style.

conjunction	-3010 May 25 j 20:14	8°8'16"53	-1°-36'-4	opposition	-3003 Dec 02 j 02:23	17°8'53"30	1°20'52
minimum elong	-3010 May 25 j 20:17	8°8'16"53	1°36'02	min. Earth dist.	-3003 Dec 04 j 18:08	17°8'49"58	38.82991 AU
retrograde	-3010 Sep 04 j 11:11	9°8'59"04		direct	-3002 Feb 21 j 23:30	16°8'44"54	
opposition	-3010 Nov 23 j 13:46	8°8'54"01	-1°-29'-18	max. Earth dist.	-3002 Jun 02 j 12:59	18°8'28"44	40.70679 AU
min. Earth dist.	-3010 Nov 25 j 21:58	8°8'51"01	40.47859 AU				
direct	-3009 Feb 13 j 12:33	7°8'47"30		conjunction	-3002 Jun 05 j 13:33	18°8'33"43	1°29'07
max. Earth dist.	-3009 May 24 j 16:14	9°8'26"24	42.36460 AU	minimum elong	-3002 Jun 05 j 13:31	18°8'33"42	1°29'11
				retrograde	-3002 Sep 15 j 04:27	20°8'21"36	
conjunction	-3009 May 27 j 08:50	9°8'30"38	-1°-13'-52	opposition	-3002 Dec 03 j 16:02	19°8'14"33	1°46'20
minimum elong	-3009 May 27 j 08:52	9°8'30"38	1°13'50	min. Earth dist.	-3002 Dec 06 j 08:24	19°8'10"58	38.58289 AU
retrograde	-3009 Sep 06 j 00:08	11°8'13"27		direct	-3001 Feb 23 j 11:37	18°8'05"35	
opposition	-3009 Nov 25 j 00:47	10°8'08"09	-1°-5'-53	max. Earth dist.	-3001 Jun 04 j 03:45	19°8'50"10	40.45796 AU
min. Earth dist.	-3009 Nov 27 j 09:55	10°8'05"06	40.24969 AU				
direct	-3008 Feb 14 j 23:03	9°8'01"22		conjunction	-3001 Jun 07 j 05:23	19°8'55"15	1°53'26
max. Earth dist.	-3008 May 25 j 05:22	10°8'40"58	42.13521 AU	minimum elong	-3001 Jun 07 j 05:20	19°8'55"15	1°53'31
				retrograde	-3001 Sep 16 j 19:55	21°8'43"56	
conjunction	-3008 May 27 j 22:07	10°8'45"14	0°-51'-24	opposition	-3001 Dec 05 j 06:09	20°8'36"33	2°12'04
minimum elong	-3008 May 27 j 22:08	10°8'45"14	0°51'22	min. Earth dist.	-3001 Dec 08 j 00:15	20°8'32"52	38.33343 AU
retrograde	-3008 Sep 06 j 11:29	12°8'28"43		direct	-3000 Feb 25 j 00:08	19°8'27"13	
opposition	-3008 Nov 25 j 12:03	11°8'23"12	0°-42'-9	max. Earth dist.	-3000 Jun 04 j 19:42	21°8'12"37	40.20710 AU
min. Earth dist.	-3008 Nov 27 j 22:17	11°8'20"04	40.01932 AU				
direct	-3007 Feb 15 j 10:11	10°8'16"08		conjunction	-3000 Jun 07 j 21:41	21°8'17"46	2°17'59
max. Earth dist.	-3007 May 26 j 17:47	11°8'56"24	41.90429 AU	minimum elong	-3000 Jun 07 j 21:37	21°8'17"46	2°18'03
				retrograde	-3000 Sep 17 j 14:03	23°8'07"14	
conjunction	-3007 May 29 j 11:40	12°8'00"46	0°-28'-39	opposition	-3000 Dec 05 j 20:24	21°8'59"31	2°38'04
minimum elong	-3007 May 29 j 11:41	12°8'00"46	0°28'36	min. Earth dist.	-3000 Dec 08 j 14:26	21°8'55"49	38.08232 AU
retrograde	-3007 Sep 08 j 02:45	13°8'44"56		direct	-2999 Feb 25 j 14:10	20°8'49"47	
opposition	-3007 Nov 26 j 23:40	12°8'39"13	0°-18'-8	max. Earth dist.	-2999 Jun 06 j 10:36	22°8'35"58	39.95466 AU
min. Earth dist.	-3007 Nov 29 j 10:12	12°8'36"03	39.78723 AU				
direct	-3006 Feb 16 j 19:38	11°8'31"52		conjunction	-2999 Jun 09 j 14:25	22°8'41"16	2°42'46
max. Earth dist.	-3006 May 28 j 06:10	13°8'12"49	41.67099 AU	minimum elong	-2999 Jun 09 j 14:20	22°8'41"15	2°42'51
				retrograde	-2999 Sep 19 j 08:32	24°8'31"33	
conjunction	-3006 May 31 j 01:38	13°8'17"19	0°-5'-41	opposition	-2999 Dec 07 j 11:21	23°8'23"29	3°04'19
minimum elong	-3006 May 31 j 01:38	13°8'17"19	0°05'38	min. Earth dist.	-2999 Dec 10 j 06:59	23°8'19"41	37.83023 AU
behind sun begin	-3006 May 30 j 19:21	13°8'16"55		direct	-2998 Feb 27 j 04:13	22°8'13"21	
behind sun end	-3006 May 31 j 07:54	13°8'17"42		max. Earth dist.	-2998 Jun 08 j 04:11	24°8'00"28	39.70145 AU
	-3006 Aug 27 j 13:26	15°8'					
asc. node	-3006 Aug 28 j 00:36	15°8'00"09		conjunction	-2998 Jun 11 j 07:32	24°8'05"47	3°07'46
retrograde	-3006 Sep 09 j 19:13	15°8'02"13		minimum elong	-2998 Jun 11 j 07:26	24°8'05"47	3°07'50
	-3006 Sep 22 j 22:14	15°8'		retrograde	-2998 Sep 20 j 23:56	25°8'56"56	
opposition	-3006 Nov 28 j 11:48	13°8'56"15	0°06'10	opposition	-2998 Dec 09 j 02:43	24°8'48"31	3°30'49
min. Earth dist.	-3006 Dec 01 j 00:24	13°8'52"58	39.55263 AU	min. Earth dist.	-2998 Dec 11 j 22:13	24°8'44"42	37.57770 AU
direct	-3005 Feb 18 j 05:20	12°8'48"38		direct	-2997 Feb 28 j 21:34	23°8'37"59	
max. Earth dist.	-3005 May 29 j 20:10	14°8'30"21	41.43495 AU	max. Earth dist.	-2997 Jun 09 j 20:10	25°8'25"56	39.44808 AU
conjunction	-3005 Jun 01 j 16:01	14°8'34"54	0°17'41	conjunction	-2997 Jun 13 j 01:01	25°8'31"24	3°32'58
minimum elong	-3005 Jun 01 j 16:00	14°8'34"54	0°17'46	minimum elong	-2997 Jun 13 j 00:54	25°8'31"24	3°33'03
	-3005 Jun 17 j 09:01	15°8'		retrograde	-2997 Sep 22 j 17:10	27°8'23"26	
retrograde	-3005 Sep 11 j 09:24	16°8'20"31		opposition	-2997 Dec 10 j 18:28	26°8'14"42	3°57'31
opposition	-3005 Nov 30 j 00:13	15°8'14"19	0°30'47	min. Earth dist.	-2997 Dec 13 j 14:30	26°8'10"49	37.32543 AU
min. Earth dist.	-3005 Dec 02 j 13:01	15°8'11"01	39.31504 AU	direct	-2996 Mar 01 j 13:36	25°8'03"46	
	-3005 Dec 11 j 00:37	15°8'		max. Earth dist.	-2996 Jun 10 j 14:22	26°8'52"42	39.19478 AU
direct	-3004 Feb 19 j 18:59	14°8'06"24					
	-3004 Apr 28 j 17:34	15°8'		conjunction	-2996 Jun 13 j 19:08	26°8'58"13	3°58'21
max. Earth dist.	-3004 May 30 j 08:25	15°8'48"46	41.19561 AU	minimum elong	-2996 Jun 13 j 19:01	26°8'58"12	3°58'25
				retrograde	-2996 Sep 23 j 09:51	28°8'51"10	
conjunction	-3004 Jun 02 j 06:42	15°8'53"30	0°41'14	opposition	-2996 Dec 11 j 10:53	27°8'42"06	4°24'27
minimum elong	-3004 Jun 02 j 06:40	15°8'53"30	0°41'18	min. Earth dist.	-2996 Dec 14 j 07:53	27°8'38"08	37.07323 AU
retrograde	-3004 Sep 12 j 00:13	17°8'39"52		direct	-2995 Mar 03 j 05:12	26°8'30"47	
opposition	-3004 Nov 30 j 13:08	16°8'33"25	0°55'41	max. Earth dist.	-2995 Jun 12 j 08:17	28°8'20"41	38.94157 AU
min. Earth dist.	-3004 Dec 03 j 03:46	16°8'29"59	39.07418 AU				
direct	-3003 Feb 20 j 08:28	15°8'25"10		conjunction	-2995 Jun 15 j 13:44	28°8'26"17	4°23'55
max. Earth dist.	-3003 May 31 j 23:22	17°8'08"19	40.95276 AU	minimum elong	-2995 Jun 15 j 13:35	28°8'26"17	4°24'00
					-2995 Aug 17 j 09:46	0°II	
conjunction	-3003 Jun 03 j 22:02	17°8'13"07	1°05'03	retrograde	-2995 Sep 25 j 05:03	0°II20"13	
minimum elong	-3003 Jun 03 j 22:00	17°8'13"07	1°05'08		-2995 Nov 03 j 14:48	30°R8'	
retrograde	-3003 Sep 13 j 12:39	19°8'00"14		opposition	-2995 Dec 13 j 03:36	29°8'10"50	4°51'34



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:39, page 26

Attention, astronomical year style is used: The year -2995 in astronomical counting style is the year 2996 BCE in historical counting style.

min. Earth dist.	-2995 Dec 16 j 00:26	29° <del>8</del> 06'52	36.82110 AU	min. Earth dist.	-2987 Dec 28 j 18:41	11° <del>II</del> 48'06	34.77661 AU
direct	-2994 Mar 04 j 20:18	27° <del>8</del> 59'08		direct	-2986 Mar 17 j 01:58	10° <del>II</del> 37'24	
max. Earth dist.	-2994 Jun 14 j 02:19	29° <del>8</del> 50'00	38.68788 AU	max. Earth dist.	-2986 Jun 27 j 04:39	12° <del>II</del> 37'16	36.62729 AU
conjunction	-2994 Jun 17 j 08:57	29° <del>8</del> 55'45	4°49'38	conjunction	-2986 Jun 30 j 15:04	12° <del>II</del> 43'44	8°19'07
minimum elong	-2994 Jun 17 j 08:47	29° <del>8</del> 55'44	4°49'43	minimum elong	-2986 Jun 30 j 14:47	12° <del>II</del> 43'42	8°19'13
	-2994 Jun 19 j 19:10	0° <del>II</del>		retrograde	-2986 Oct 10 j 12:01	14° <del>II</del> 47'28	
retrograde	-2994 Sep 27 j 01:37	1° <del>II</del> 50'41		opposition	-2986 Dec 27 j 14:16	13° <del>II</del> 34'39	9°01'32
opposition	-2994 Dec 14 j 21:09	0° <del>II</del> 40'58	5°18'52	min. Earth dist.	-2986 Dec 30 j 16:14	13° <del>II</del> 30'09	34.52257 AU
min. Earth dist.	-2994 Dec 17 j 19:37	0° <del>II</del> 36'53	36.56846 AU	direct	-2985 Mar 19 j 00:55	12° <del>II</del> 18'58	
	-2993 Jan 15 j 04:50	30° <del>R</del> 8		max. Earth dist.	-2985 Jun 29 j 03:56	14° <del>II</del> 20'01	36.37202 AU
direct	-2993 Mar 06 j 11:41	29° <del>8</del> 28'53		conjunction	-2985 Jul 02 j 15:17	14° <del>II</del> 26'37	8°45'21
	-2993 Apr 25 j 01:35	0° <del>II</del>		minimum elong	-2985 Jul 02 j 14:58	14° <del>II</del> 26'35	8°45'26
max. Earth dist.	-2993 Jun 15 j 22:10	1° <del>II</del> 20'51	38.43341 AU	retrograde	-2985 Oct 12 j 14:21	16° <del>II</del> 31'35	
conjunction	-2993 Jun 19 j 04:33	1° <del>II</del> 26'37	5°15'30	opposition	-2985 Dec 29 j 13:22	15° <del>II</del> 18'22	9°29'26
minimum elong	-2993 Jun 19 j 04:23	1° <del>II</del> 26'37	5°15'36	min. Earth dist.	-2984 Jan 01 j 15:45	15° <del>II</del> 13'48	34.27113 AU
retrograde	-2993 Sep 28 j 23:03	3° <del>II</del> 22'35		direct	-2984 Mar 19 j 22:54	14° <del>II</del> 02'13	
opposition	-2993 Dec 16 j 15:10	2° <del>II</del> 12'32	5°46'20	max. Earth dist.	-2984 Jun 30 j 06:16	16° <del>II</del> 04'40	36.11934 AU
min. Earth dist.	-2993 Dec 19 j 13:31	2° <del>II</del> 08'26	36.31482 AU	conjunction	-2984 Jul 03 j 16:29	16° <del>II</del> 11'15	9°11'27
direct	-2992 Mar 07 j 06:08	1° <del>II</del> 00'03		minimum elong	-2984 Jul 03 j 16:11	16° <del>II</del> 11'14	9°11'33
max. Earth dist.	-2992 Jun 16 j 16:29	2° <del>II</del> 52'59	38.17760 AU	retrograde	-2984 Oct 13 j 15:14	18° <del>II</del> 17'28	
conjunction	-2992 Jun 20 j 00:53	2° <del>II</del> 58'57	5°41'31	opposition	-2984 Dec 30 j 13:07	17° <del>II</del> 03'52	9°57'12
minimum elong	-2992 Jun 20 j 00:42	2° <del>II</del> 58'56	5°41'36	min. Earth dist.	-2983 Jan 02 j 15:26	16° <del>II</del> 59'17	34.02243 AU
retrograde	-2992 Sep 29 j 20:38	4° <del>II</del> 55'57		direct	-2983 Mar 21 j 23:50	15° <del>II</del> 47'17	
opposition	-2992 Dec 17 j 09:41	3° <del>II</del> 45'32	6°13'58	max. Earth dist.	-2983 Jul 02 j 07:32	17° <del>II</del> 51'03	35.86955 AU
min. Earth dist.	-2992 Dec 20 j 09:36	3° <del>II</del> 41'20	36.05999 AU	conjunction	-2983 Jul 05 j 18:16	17° <del>II</del> 57'44	9°37'24
direct	-2991 Mar 08 j 23:33	2° <del>II</del> 32'38		minimum elong	-2983 Jul 05 j 17:56	17° <del>II</del> 57'43	9°37'29
max. Earth dist.	-2991 Jun 18 j 13:38	4° <del>II</del> 26'42	37.92037 AU	retrograde	-2983 Oct 15 j 19:17	20° <del>II</del> 05'15	
conjunction	-2991 Jun 21 j 21:58	4° <del>II</del> 32'43	6°07'38	opposition	-2982 Jan 01 j 13:40	18° <del>II</del> 51'17	10°24'49
minimum elong	-2991 Jun 21 j 21:45	4° <del>II</del> 32'42	6°07'43	min. Earth dist.	-2982 Jan 04 j 15:26	18° <del>II</del> 46'41	33.77669 AU
retrograde	-2991 Oct 01 j 16:21	6° <del>II</del> 30'47		direct	-2982 Mar 23 j 22:57	17° <del>II</del> 34'15	
opposition	-2991 Dec 19 j 04:59	5° <del>II</del> 20'01	6°41'44	max. Earth dist.	-2982 Jul 04 j 10:31	19° <del>II</del> 39'26	35.62226 AU
min. Earth dist.	-2991 Dec 22 j 05:26	5° <del>II</del> 15'44	35.80381 AU	conjunction	-2982 Jul 07 j 20:49	19° <del>II</del> 46'10	10°03'10
direct	-2990 Mar 10 j 20:26	4° <del>II</del> 06'40		minimum elong	-2982 Jul 07 j 20:29	19° <del>II</del> 46'08	10°03'16
max. Earth dist.	-2990 Jun 20 j 09:30	6° <del>II</del> 01'46	37.66199 AU	retrograde	-2982 Oct 17 j 20:17	21° <del>II</del> 55'01	
conjunction	-2990 Jun 23 j 19:18	6° <del>II</del> 07'57	6°33'52	opposition	-2981 Jan 03 j 15:10	20° <del>II</del> 40'40	10°52'13
minimum elong	-2990 Jun 23 j 19:05	6° <del>II</del> 07'56	6°33'57	min. Earth dist.	-2981 Jan 06 j 17:43	20° <del>II</del> 36'00	33.53342 AU
retrograde	-2990 Oct 03 j 14:21	8° <del>II</del> 07'05		direct	-2981 Mar 25 j 22:10	19° <del>II</del> 23'12	
opposition	-2990 Dec 21 j 00:45	6° <del>II</del> 55'56	7°09'36	max. Earth dist.	-2981 Jul 06 j 14:14	21° <del>II</del> 29'49	35.37736 AU
min. Earth dist.	-2990 Dec 24 j 01:34	6° <del>II</del> 51'36	35.54686 AU	conjunction	-2981 Jul 10 j 00:07	21° <del>II</del> 36'35	10°28'41
direct	-2989 Mar 12 j 15:18	5° <del>II</del> 42'08		minimum elong	-2981 Jul 09 j 23:45	21° <del>II</del> 36'33	10°28'46
max. Earth dist.	-2989 Jun 22 j 07:17	7° <del>II</del> 38'22	37.40276 AU	retrograde	-2981 Oct 20 j 00:27	23° <del>II</del> 46'47	
conjunction	-2989 Jun 25 j 17:27	7° <del>II</del> 44'38	7°00'09	opposition	-2980 Jan 05 j 17:13	22° <del>II</del> 32'03	11°19'22
minimum elong	-2989 Jun 25 j 17:12	7° <del>II</del> 44'37	7°00'14	min. Earth dist.	-2980 Jan 08 j 18:55	22° <del>II</del> 27'24	33.29240 AU
retrograde	-2989 Oct 05 j 11:13	9° <del>II</del> 44'53		direct	-2980 Mar 26 j 22:35	21° <del>II</del> 14'09	
opposition	-2989 Dec 22 j 21:10	8° <del>II</del> 33'19	7°37'33	max. Earth dist.	-2980 Jul 07 j 17:43	23° <del>II</del> 22'07	35.13429 AU
min. Earth dist.	-2989 Dec 25 j 23:17	8° <del>II</del> 28'53	35.28952 AU	conjunction	-2980 Jul 11 j 04:19	23° <del>II</del> 29'01	10°53'57
direct	-2988 Mar 13 j 09:41	7° <del>II</del> 19'04		minimum elong	-2980 Jul 11 j 03:58	23° <del>II</del> 28'59	10°54'03
max. Earth dist.	-2988 Jun 23 j 05:40	9° <del>II</del> 16'27	37.14351 AU	retrograde	-2980 Oct 21 j 05:52	25° <del>II</del> 40'35	
conjunction	-2988 Jun 26 j 16:01	9° <del>II</del> 22'48	7°26'29	opposition	-2979 Jan 06 j 20:23	24° <del>II</del> 25'27	11°46'15
minimum elong	-2988 Jun 26 j 15:46	9° <del>II</del> 22'47	7°26'35	min. Earth dist.	-2979 Jan 09 j 23:14	24° <del>II</del> 20'43	33.05325 AU
retrograde	-2988 Oct 06 j 10:30	11° <del>II</del> 24'11		direct	-2979 Mar 28 j 22:00	23° <del>II</del> 07'05	
opposition	-2988 Dec 23 j 18:08	10° <del>II</del> 12'12	8°05'33	max. Earth dist.	-2979 Jul 09 j 23:40	25° <del>II</del> 16'34	34.89304 AU
min. Earth dist.	-2988 Dec 26 j 19:46	10° <del>II</del> 07'47	35.03253 AU	conjunction	-2979 Jul 13 j 09:18	25° <del>II</del> 23'27	11°18'53
direct	-2987 Mar 15 j 06:19	8° <del>II</del> 57'28		minimum elong	-2979 Jul 13 j 08:55	25° <del>II</del> 23'25	11°18'58
max. Earth dist.	-2987 Jun 25 j 03:48	10° <del>II</del> 56'00	36.88468 AU	retrograde	-2979 Oct 23 j 11:57	27° <del>II</del> 36'23	
conjunction	-2987 Jun 28 j 15:15	11° <del>II</del> 02'29	7°52'49	opposition	-2978 Jan 09 j 00:19	26° <del>II</del> 20'50	12°12'47
minimum elong	-2987 Jun 28 j 14:58	11° <del>II</del> 02'27	7°52'55	min. Earth dist.	-2978 Jan 12 j 02:17	26° <del>II</del> 16'07	32.81593 AU
retrograde	-2987 Oct 08 j 11:35	13° <del>II</del> 05'02		direct	-2978 Mar 31 j 02:22	25° <del>II</del> 02'00	
opposition	-2987 Dec 25 j 15:51	11° <del>II</del> 52'38	8°33'34	max. Earth dist.	-2978 Jul 12 j 04:22	27° <del>II</del> 12'50	34.65371 AU



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:40, page 27

Attention, astronomical year style is used: The year -2978 in astronomical counting style is the year 2979 BCE in historical counting style.

conjunction	-2978 Jul 15 j 15:00	27°II19'51	11°43'28	conjunction	-2970 Aug 01 j 15:39	14°☾01'56	14°38'32
minimum elong	-2978 Jul 15 j 14:37	27°II19'50	11°43'34	minimum elong	-2970 Aug 01 j 15:17	14°☾01'54	14°38'38
retrograde	-2978 Oct 25 j 20:52	29°II34'11		retrograde	-2970 Nov 12 j 04:43	16°☾27'26	
opposition	-2977 Jan 11 j 05:08	28°II18'11	12°38'55	opposition	-2969 Jan 28 j 02:38	15°☾08'08	15°44'21
min. Earth dist.	-2977 Jan 14 j 07:34	28°II13'25	32.58089 AU	min. Earth dist.	-2969 Jan 30 j 22:07	15°☾03'36	30.85453 AU
direct	-2977 Apr 02 j 06:20	26°II58'52		direct	-2969 Apr 18 j 18:18	13°☾45'14	
max. Earth dist.	-2977 Jul 14 j 12:14	29°II11'15	34.41673 AU	max. Earth dist.	-2969 Aug 01 j 02:52	16°☾09'50	32.68700 AU
conjunction	-2977 Jul 17 j 21:27	29°II18'13	12°07'37	conjunction	-2969 Aug 04 j 04:04	16°☾16'38	14°56'34
minimum elong	-2977 Jul 17 j 21:03	29°II18'11	12°07'42	minimum elong	-2969 Aug 04 j 03:42	16°☾16'36	14°56'39
	-2977 Aug 07 j 10:30	0°☾		retrograde	-2969 Nov 14 j 21:00	18°☾43'33	
retrograde	-2977 Oct 28 j 03:40	1°☾33'55		opposition	-2968 Jan 30 j 15:24	17°☾23'54	16°03'18
opposition	-2976 Jan 13 j 10:48	0°☾17'29	13°04'35	min. Earth dist.	-2968 Feb 02 j 09:56	17°☾19'25	30.66585 AU
min. Earth dist.	-2976 Jan 16 j 12:54	0°☾12'42	32.34834 AU	direct	-2968 Apr 20 j 05:52	16°☾00'39	
	-2976 Jan 24 j 19:36	30°RII		max. Earth dist.	-2968 Aug 02 j 18:55	18°☾26'55	32.49849 AU
direct	-2976 Apr 03 j 12:43	28°II57'41		conjunction	-2968 Aug 05 j 17:34	18°☾33'32	15°13'30
	-2976 Jun 09 j 03:17	0°☾		minimum elong	-2968 Aug 05 j 17:13	18°☾33'30	15°13'35
max. Earth dist.	-2976 Jul 15 j 18:57	1°☾11'26	34.18264 AU	retrograde	-2968 Nov 16 j 11:17	21°☾01'50	
conjunction	-2976 Jul 19 j 04:37	1°☾18'31	12°31'16	opposition	-2967 Feb 01 j 05:10	19°☾41'51	16°21'03
minimum elong	-2976 Jul 19 j 04:14	1°☾18'29	12°31'22	min. Earth dist.	-2967 Feb 03 j 22:43	19°☾37'24	30.48310 AU
retrograde	-2976 Oct 29 j 12:38	3°☾35'35		direct	-2967 Apr 22 j 19:21	18°☾18'16	
opposition	-2975 Jan 14 j 17:06	2°☾18'42	13°29'43	max. Earth dist.	-2967 Aug 05 j 09:43	20°☾45'57	32.31621 AU
min. Earth dist.	-2975 Jan 17 j 18:41	2°☾13'55	32.11915 AU	conjunction	-2967 Aug 08 j 07:42	20°☾52'34	15°29'16
direct	-2975 Apr 05 j 18:15	0°☾58'24		minimum elong	-2967 Aug 08 j 07:21	20°☾52'32	15°29'20
max. Earth dist.	-2975 Jul 18 j 04:14	3°☾13'42	33.95208 AU	retrograde	-2967 Nov 19 j 04:26	23°☾22'13	
conjunction	-2975 Jul 21 j 12:42	3°☾20'45	12°54'22	opposition	-2966 Feb 03 j 19:52	22°☾01'54	16°37'32
minimum elong	-2975 Jul 21 j 12:17	3°☾20'43	12°54'27	min. Earth dist.	-2966 Feb 06 j 11:38	21°☾57'33	30.30650 AU
retrograde	-2975 Oct 31 j 20:13	5°☾39'11		direct	-2966 Apr 25 j 08:45	20°☾37'59	
opposition	-2974 Jan 17 j 00:34	4°☾21'51	13°54'14	max. Earth dist.	-2966 Aug 08 j 02:52	23°☾07'11	32.14011 AU
min. Earth dist.	-2974 Jan 20 j 02:07	4°☾17'02	31.89393 AU	conjunction	-2966 Aug 10 j 22:35	23°☾13'39	15°43'47
direct	-2974 Apr 08 j 00:52	3°☾01'04		minimum elong	-2966 Aug 10 j 22:17	23°☾13'37	15°43'53
max. Earth dist.	-2974 Jul 20 j 13:33	5°☾17'51	33.72610 AU	retrograde	-2966 Nov 21 j 20:22	25°☾44'35	
conjunction	-2974 Jul 23 j 21:10	5°☾24'54	13°16'49	opposition	-2965 Feb 06 j 11:33	24°☾23'56	16°52'40
minimum elong	-2974 Jul 23 j 20:46	5°☾24'52	13°16'55	min. Earth dist.	-2965 Feb 09 j 02:39	24°☾19'37	30.13601 AU
retrograde	-2974 Nov 03 j 06:44	7°☾44'43		direct	-2965 Apr 27 j 23:19	22°☾59'42	
opposition	-2973 Jan 19 j 08:44	6°☾26'57	14°18'02	max. Earth dist.	-2965 Aug 10 j 19:49	25°☾30'16	31.97065 AU
min. Earth dist.	-2973 Jan 22 j 08:32	6°☾22'13	31.67373 AU	conjunction	-2965 Aug 13 j 14:09	25°☾36'38	15°57'00
direct	-2973 Apr 10 j 07:47	5°☾05'40		minimum elong	-2965 Aug 13 j 13:51	25°☾36'37	15°57'04
max. Earth dist.	-2973 Jul 22 j 23:58	7°☾23'59	33.50540 AU	retrograde	-2965 Nov 24 j 14:42	28°☾08'48	
conjunction	-2973 Jul 26 j 06:37	7°☾31'01	13°38'32	opposition	-2964 Feb 09 j 03:44	26°☾47'50	17°06'21
minimum elong	-2973 Jul 26 j 06:13	7°☾30'59	13°38'37	min. Earth dist.	-2964 Feb 11 j 16:21	26°☾43'39	29.97212 AU
retrograde	-2973 Nov 05 j 15:33	9°☾52'15		direct	-2964 Apr 29 j 14:55	25°☾23'15	
opposition	-2972 Jan 21 j 17:48	8°☾34'03	14°41'02	max. Earth dist.	-2964 Aug 12 j 14:03	27°☾55'11	31.80808 AU
min. Earth dist.	-2972 Jan 24 j 17:37	8°☾29'18	31.45927 AU	conjunction	-2964 Aug 15 j 06:31	28°☾01'25	16°08'49
direct	-2972 Apr 11 j 14:07	7°☾12'20		minimum elong	-2964 Aug 15 j 06:15	28°☾01'24	16°08'54
max. Earth dist.	-2972 Jul 24 j 12:09	9°☾32'15	33.29094 AU		-2964 Oct 12 j 06:58	0°♂	
conjunction	-2972 Jul 27 j 16:51	9°☾39'11	13°59'27	retrograde	-2964 Nov 26 j 06:14	0°♂34'46	
minimum elong	-2972 Jul 27 j 16:28	9°☾39'09	13°59'33		-2963 Jan 11 j 23:42	30°R☾	
retrograde	-2972 Nov 07 j 02:43	12°☾01'49		opposition	-2963 Feb 10 j 21:01	29°☾13'27	17°18'30
opposition	-2971 Jan 23 j 03:47	10°☾43'14	15°03'08	min. Earth dist.	-2963 Feb 13 j 09:00	29°☾09'18	29.81525 AU
min. Earth dist.	-2971 Jan 26 j 01:29	10°☾38'36	31.25110 AU	direct	-2963 May 02 j 06:04	27°☾48'32	
direct	-2971 Apr 13 j 23:27	9°☾21'05		max. Earth dist.	-2963 Aug 06 j 00:15	0°♂	
max. Earth dist.	-2971 Jul 26 j 23:39	11°☾42'31	33.08295 AU		-2963 Aug 15 j 09:21	0°♂21'48	31.65325 AU
conjunction	-2971 Jul 30 j 03:48	11°☾49'28	14°19'28	conjunction	-2963 Aug 17 j 23:15	0°♂27'51	16°19'09
minimum elong	-2971 Jul 30 j 03:24	11°☾49'26	14°19'33	minimum elong	-2963 Aug 17 j 23:00	0°♂27'50	16°19'14
retrograde	-2971 Nov 09 j 15:31	14°☾13'32		retrograde	-2963 Nov 29 j 00:17	3°♂02'17	
opposition	-2970 Jan 25 j 14:46	12°☾54'35	15°24'16	opposition	-2962 Feb 13 j 14:57	1°♂40'39	17°29'02
min. Earth dist.	-2970 Jan 28 j 12:04	12°☾49'57	31.04957 AU	min. Earth dist.	-2962 Feb 15 j 23:55	1°♂36'41	29.66616 AU
direct	-2970 Apr 16 j 07:12	11°☾32'02		direct	-2962 May 04 j 23:35	0°♂15'26	
max. Earth dist.	-2970 Jul 29 j 14:03	13°☾55'10	32.88172 AU	max. Earth dist.	-2962 Aug 18 j 04:34	2°♂49'54	31.50679 AU



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:40, page 28

Attention, astronomical year style is used: The year -2962 in astronomical counting style is the year 2963 BCE in historical counting style.

conjunction	-2962 Aug 20 j 16:35	2°Ω55'48	16°27'55	conjunction	-2954 Sep 10 j 01:30	23°Ω22'55	16°33'37
minimum elong	-2962 Aug 20 j 16:23	2°Ω55'46	16°28'00	minimum elong	-2954 Sep 10 j 01:37	23°Ω22'56	16°33'40
retrograde	-2962 Dec 01 j 18:23	5°Ω31'17		retrograde	-2954 Dec 22 j 15:44	26°Ω04'04	
opposition	-2961 Feb 16 j 09:36	4°Ω09'18	17°37'50	opposition	-2953 Mar 09 j 11:44	24°Ω40'40	17°37'53
min. Earth dist.	-2961 Feb 18 j 17:19	4°Ω05'26	29.52581 AU	min. Earth dist.	-2953 Mar 10 j 20:06	24°Ω38'23	28.77112 AU
direct	-2961 May 07 j 14:47	2°Ω43'47		direct	-2953 May 28 j 12:03	23°Ω14'19	
max. Earth dist.	-2961 Aug 21 j 01:50	5°Ω19'32	31.36982 AU				
conjunction	-2961 Aug 23 j 10:20	5°Ω25'08	16°35'02	conjunction	-2953 Sep 12 j 21:51	26°Ω00'06	16°25'48
minimum elong	-2961 Aug 23 j 10:08	5°Ω25'06	16°35'06	minimum elong	-2953 Sep 12 j 21:58	26°Ω00'07	16°25'52
retrograde	-2961 Dec 04 j 12:17	8°Ω01'35		max. Earth dist.	-2953 Sep 11 j 13:51	25°Ω56'50	30.65785 AU
opposition	-2960 Feb 19 j 04:55	6°Ω39'19	17°44'49	retrograde	-2953 Dec 25 j 12:07	28°Ω41'31	
min. Earth dist.	-2960 Feb 21 j 09:20	6°Ω35'39	29.39488 AU	opposition	-2952 Mar 11 j 10:57	27°Ω18'02	17°28'40
direct	-2960 May 09 j 10:43	5°Ω13'33		min. Earth dist.	-2952 Mar 12 j 17:27	27°Ω15'54	28.72239 AU
max. Earth dist.	-2960 Aug 22 j 21:57	7°Ω50'21	31.24293 AU	direct	-2952 May 30 j 09:53	25°Ω51'43	
conjunction	-2960 Aug 25 j 04:31	7°Ω55'47	16°40'25	conjunction	-2952 Sep 14 j 18:07	28°Ω37'31	16°16'05
minimum elong	-2960 Aug 25 j 04:24	7°Ω55'46	16°40'29	minimum elong	-2952 Sep 14 j 18:19	28°Ω37'32	16°16'07
retrograde	-2960 Dec 06 j 07:55	10°Ω33'09		max. Earth dist.	-2952 Sep 13 j 13:19	28°Ω34'35	30.61584 AU
opposition	-2959 Feb 21 j 00:52	9°Ω10'36	17°49'53		-2952 Oct 20 j 00:57	0°♊	
min. Earth dist.	-2959 Feb 23 j 03:03	9°Ω07'06	29.27426 AU	retrograde	-2952 Dec 27 j 09:49	1°♊19'05	
direct	-2959 May 12 j 04:26	7°Ω44'38			-2951 Mar 11 j 19:01	30°♋Ω	
max. Earth dist.	-2959 Aug 25 j 20:52	10°Ω22'38	31.12696 AU	opposition	-2951 Mar 14 j 10:07	29°Ω55'33	17°17'23
conjunction	-2959 Aug 27 j 23:17	10°Ω27'41	16°43'59	min. Earth dist.	-2951 Mar 15 j 12:33	29°Ω53'41	28.68356 AU
minimum elong	-2959 Aug 27 j 23:10	10°Ω27'40	16°44'03	direct	-2951 Jun 02 j 09:50	28°Ω29'16	
retrograde	-2959 Dec 09 j 03:16	13°Ω05'53			-2951 Aug 16 j 19:21	0°♊	
opposition	-2958 Feb 23 j 21:33	11°Ω43'08	17°53'00	conjunction	-2951 Sep 17 j 14:23	1°♊14'58	16°04'27
min. Earth dist.	-2958 Feb 25 j 20:39	11°Ω39'49	29.16424 AU	minimum elong	-2951 Sep 17 j 14:35	1°♊15'00	16°04'30
direct	-2958 May 15 j 00:13	10°Ω17'00		max. Earth dist.	-2951 Sep 16 j 12:38	1°♊12'21	30.58415 AU
max. Earth dist.	-2958 Aug 28 j 17:55	12°Ω55'55	31.02211 AU	retrograde	-2951 Dec 30 j 07:08	3°♊56'35	
conjunction	-2958 Aug 30 j 18:10	13°Ω00'46	16°45'43	opposition	-2950 Mar 17 j 09:32	2°♊33'00	17°04'03
minimum elong	-2958 Aug 30 j 18:07	13°Ω00'45	16°45'47	min. Earth dist.	-2950 Mar 18 j 09:38	2°♊31'18	28.65510 AU
retrograde	-2958 Oct 25 j 12:03	15°Ω		direct	-2950 Jun 05 j 07:15	1°♊06'46	
	-2958 Dec 12 j 00:56	15°Ω39'45		conjunction	-2950 Sep 20 j 10:22	3°♊52'14	15°50'56
opposition	-2957 Jan 30 j 20:27	15°♋Ω		minimum elong	-2950 Sep 20 j 10:37	3°♊52'16	15°50'59
min. Earth dist.	-2957 Feb 26 j 18:39	14°Ω16'49	17°54'06	max. Earth dist.	-2950 Sep 19 j 12:34	3°♊50'01	30.56338 AU
direct	-2957 Feb 28 j 14:48	14°Ω13'42	29.06510 AU	retrograde	-2949 Jan 02 j 02:54	6°♊33'46	
	-2957 May 17 j 19:58	12°Ω50'34		opposition	-2949 Mar 20 j 08:45	5°♊10'10	16°48'41
max. Earth dist.	-2957 Aug 31 j 17:38	15°Ω30'32	30.92824 AU	min. Earth dist.	-2949 Mar 21 j 04:45	5°♊08'45	28.63731 AU
conjunction	-2957 Sep 02 j 13:41	15°Ω34'58	16°45'33	direct	-2949 Jun 08 j 07:35	3°♊44'01	
minimum elong	-2957 Sep 02 j 13:39	15°Ω34'58	16°45'37	max. Earth dist.	-2949 Sep 22 j 11:12	6°♊27'11	30.55383 AU
retrograde	-2957 Dec 14 j 21:11	18°Ω14'38		conjunction	-2949 Sep 23 j 06:08	6°♊29'07	15°35'34
opposition	-2956 Feb 29 j 16:13	16°Ω51'33	17°53'09	minimum elong	-2949 Sep 23 j 06:24	6°♊29'09	15°35'36
min. Earth dist.	-2956 Mar 02 j 10:01	16°Ω48'37	28.97639 AU	retrograde	-2948 Jan 04 j 22:48	9°♊10'29	
direct	-2956 May 19 j 17:42	15°Ω25'15		opposition	-2948 Mar 22 j 07:49	7°♊46'52	16°31'19
max. Earth dist.	-2956 Sep 02 j 15:32	18°Ω05'56	30.84516 AU	min. Earth dist.	-2948 Mar 23 j 00:49	7°♊45'40	28.63098 AU
conjunction	-2956 Sep 04 j 09:22	18°Ω10'10	16°43'30	direct	-2948 Jun 10 j 05:06	6°♊20'49	
minimum elong	-2956 Sep 04 j 09:24	18°Ω10'10	16°43'33	max. Earth dist.	-2948 Sep 24 j 11:29	9°♊04'02	30.55631 AU
retrograde	-2956 Dec 16 j 19:35	20°Ω50'26		conjunction	-2948 Sep 25 j 01:44	9°♊05'29	15°18'22
opposition	-2955 Mar 03 j 14:20	19°Ω27'13	17°50'08	minimum elong	-2948 Sep 25 j 02:03	9°♊05'31	15°18'23
min. Earth dist.	-2955 Mar 05 j 04:35	19°Ω24'32	28.89803 AU	retrograde	-2947 Jan 06 j 18:08	11°♊46'35	
direct	-2955 May 22 j 14:55	18°Ω00'53		opposition	-2947 Mar 25 j 06:53	10°♊22'59	16°11'59
max. Earth dist.	-2955 Sep 05 j 15:24	20°Ω42'22	30.77245 AU	min. Earth dist.	-2947 Mar 25 j 19:58	10°♊22'04	28.63654 AU
conjunction	-2955 Sep 07 j 05:23	20°Ω46'13	16°39'31	direct	-2947 Jun 13 j 03:59	8°♊57'06	
minimum elong	-2955 Sep 07 j 05:25	20°Ω46'13	16°39'35	conjunction	-2947 Sep 27 j 20:46	11°♊41'11	14°59'21
retrograde	-2955 Dec 19 j 16:37	23°Ω26'58		minimum elong	-2947 Sep 27 j 21:06	11°♊41'13	14°59'23
opposition	-2954 Mar 06 j 13:02	22°Ω03'40	17°45'03	max. Earth dist.	-2947 Sep 27 j 09:27	11°♊40'02	30.57119 AU
min. Earth dist.	-2954 Mar 08 j 01:15	22°Ω01'07	28.82961 AU	retrograde	-2946 Jan 09 j 14:22	14°♊21'57	
direct	-2954 May 25 j 12:52	20°Ω37'19		opposition	-2946 Mar 28 j 05:43	12°♊58'25	15°50'43
max. Earth dist.	-2954 Sep 08 j 14:07	23°Ω19'19	30.71011 AU	min. Earth dist.	-2946 Mar 28 j 14:52	12°♊57'47	28.65456 AU
				direct	-2946 Jun 16 j 01:28	11°♊32'44	
				conjunction	-2946 Sep 30 j 15:45	14°♊16'11	14°38'37



# Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:40, page 29

Attention, astronomical year style is used: The year -2946 in astronomical counting style is the year 2947 BCE in historical counting style.

minimum elong	-2946 Sep 30 j 16:07	14° $\overline{16}$ '13	14°38'38	minimum elong	-2938 Oct 20 j 06:19	4° $\underline{17}$ '50	11°01'16
max. Earth dist.	-2946 Sep 30 j 09:22	14° $\overline{15}$ '32	30.59874 AU	max. Earth dist.	-2938 Oct 21 j 01:07	4° $\underline{19}$ '40	31.21641 AU
retrograde	-2945 Jan 12 j 08:34	16° $\overline{56}$ '31		retrograde	-2937 Feb 01 j 04:58	6° $\underline{51}$ '56	
opposition	-2945 Mar 31 j 04:08	15° $\overline{33}$ '06	15°27'38	min. Earth dist.	-2937 Apr 20 j 04:11	5° $\underline{31}$ '25	29.31224 AU
min. Earth dist.	-2945 Mar 31 j 09:56	15° $\overline{32}$ '41	28.68483 AU	opposition	-2937 Apr 21 j 00:41	5° $\underline{30}$ '02	11°29'11
direct	-2945 Jun 19 j 00:19	14° $\overline{07}$ '39		direct	-2937 Jul 09 j 23:07	4° $\underline{07}$ '10	
conjunction	-2945 Oct 03 j 10:10	16° $\overline{50}$ '23	14°16'13	conjunction	-2937 Oct 22 j 20:02	6° $\underline{41}$ '15	10°29'10
minimum elong	-2945 Oct 03 j 10:32	16° $\overline{50}$ '25	14°16'16	minimum elong	-2937 Oct 22 j 20:26	6° $\underline{41}$ '17	10°29'11
max. Earth dist.	-2945 Oct 03 j 06:25	16° $\overline{50}$ '00	30.63867 AU	max. Earth dist.	-2937 Oct 23 j 19:00	6° $\underline{43}$ '29	31.33627 AU
retrograde	-2944 Jan 15 j 04:58	19° $\overline{30}$ '13		retrograde	-2936 Feb 03 j 17:36	9° $\underline{14}$ '19	
opposition	-2944 Apr 02 j 02:16	18° $\overline{06}$ '56	15°02'47	opposition	-2936 Apr 22 j 18:29	7° $\underline{52}$ '38	10°54'20
min. Earth dist.	-2944 Apr 02 j 03:43	18° $\overline{06}$ '50	28.72717 AU	min. Earth dist.	-2936 Apr 21 j 18:54	7° $\underline{54}$ '13	29.43284 AU
direct	-2944 Jun 20 j 21:06	16° $\overline{41}$ '46		direct	-2936 Jul 11 j 18:36	6° $\underline{30}$ '06	
conjunction	-2944 Oct 05 j 04:15	19° $\overline{23}$ '41	13°52'16	conjunction	-2936 Oct 24 j 09:08	9° $\underline{02}$ '50	9°56'18
minimum elong	-2944 Oct 05 j 04:38	19° $\overline{23}$ '44	13°52'17	minimum elong	-2936 Oct 24 j 09:31	9° $\underline{02}$ '53	9°56'16
max. Earth dist.	-2944 Oct 05 j 05:09	19° $\overline{23}$ '47	30.69042 AU	max. Earth dist.	-2936 Oct 25 j 10:23	9° $\underline{05}$ '16	31.46528 AU
retrograde	-2943 Jan 16 j 22:53	22° $\overline{02}$ '56		retrograde	-2935 Feb 05 j 07:27	11° $\underline{34}$ '50	
opposition	-2943 Apr 05 j 00:13	20° $\overline{39}$ '50	14°36'18	min. Earth dist.	-2935 Apr 24 j 08:25	10° $\underline{15}$ '11	29.56309 AU
min. Earth dist.	-2943 Apr 04 j 23:00	20° $\overline{39}$ '55	28.78084 AU	opposition	-2935 Apr 25 j 11:39	10° $\underline{13}$ '21	10°18'41
direct	-2943 Jun 23 j 18:54	19° $\overline{14}$ '59		direct	-2935 Jul 14 j 10:58	8° $\underline{51}$ '11	
conjunction	-2943 Oct 07 j 21:49	21° $\overline{56}$ '00	13°26'50	conjunction	-2935 Oct 26 j 21:47	11° $\underline{22}$ '33	9°22'44
minimum elong	-2943 Oct 07 j 22:13	21° $\overline{56}$ '02	13°26'52	minimum elong	-2935 Oct 26 j 22:09	11° $\underline{22}$ '36	9°22'44
max. Earth dist.	-2943 Oct 08 j 01:21	21° $\overline{56}$ '21	30.75349 AU	max. Earth dist.	-2935 Oct 28 j 03:14	11° $\underline{25}$ '23	31.60392 AU
retrograde	-2942 Jan 19 j 19:02	24° $\overline{34}$ '35		retrograde	-2934 Feb 07 j 18:00	13° $\underline{53}$ '26	
opposition	-2942 Apr 07 j 21:36	23° $\overline{11}$ '40	14°08'17	min. Earth dist.	-2934 Apr 26 j 22:10	12° $\underline{34}$ '12	29.70309 AU
min. Earth dist.	-2942 Apr 07 j 16:01	23° $\overline{12}$ '03	28.84546 AU	opposition	-2934 Apr 28 j 04:00	12° $\underline{32}$ '13	9°42'21
direct	-2942 Jun 26 j 17:23	21° $\overline{47}$ '08		direct	-2934 Jul 17 j 04:13	11° $\underline{10}$ '26	
conjunction	-2942 Oct 10 j 14:57	24° $\overline{27}$ '11	13°00'03	conjunction	-2934 Oct 29 j 09:30	13° $\underline{40}$ '27	8°48'34
minimum elong	-2942 Oct 10 j 15:22	24° $\overline{27}$ '13	13°00'03	minimum elong	-2934 Oct 29 j 09:51	13° $\underline{40}$ '28	8°48'32
max. Earth dist.	-2942 Oct 10 j 22:34	24° $\overline{27}$ '57	30.82707 AU	max. Earth dist.	-2934 Oct 30 j 16:56	13° $\underline{43}$ '26	31.75227 AU
retrograde	-2941 Jan 22 j 12:03	27° $\overline{05}$ '02		retrograde	-2933 Feb 10 j 06:54	16° $\underline{10}$ '12	
opposition	-2941 Apr 10 j 18:39	25° $\overline{42}$ '18	13°38'51	min. Earth dist.	-2933 Apr 29 j 09:37	14° $\underline{51}$ '31	29.85290 AU
min. Earth dist.	-2941 Apr 10 j 10:54	25° $\overline{42}$ '50	28.92022 AU	opposition	-2933 Apr 30 j 19:30	14° $\underline{49}$ '16	9°05'27
direct	-2941 Jun 29 j 13:50	24° $\overline{18}$ '06		direct	-2933 Jul 19 j 18:42	13° $\underline{27}$ '54	
conjunction	-2941 Oct 13 j 07:35	26° $\overline{57}$ '06	12°31'59	conjunction	-2933 Oct 31 j 20:39	15° $\underline{56}$ '33	8°13'55
minimum elong	-2941 Oct 13 j 08:00	26° $\overline{57}$ '08	12°32'00	minimum elong	-2933 Oct 31 j 20:59	15° $\underline{56}$ '35	8°13'53
max. Earth dist.	-2941 Oct 13 j 17:56	26° $\overline{58}$ '07	30.91065 AU	max. Earth dist.	-2933 Nov 02 j 08:03	15° $\underline{59}$ '53	31.91000 AU
retrograde	-2940 Jan 25 j 06:09	29° $\overline{34}$ '07		retrograde	-2932 Feb 12 j 17:10	18° $\underline{25}$ '11	
opposition	-2940 Apr 12 j 14:56	28° $\overline{11}$ '36	13°08'07	min. Earth dist.	-2932 Apr 30 j 22:30	17° $\underline{06}$ '56	30.01200 AU
min. Earth dist.	-2940 Apr 12 j 03:02	28° $\overline{12}$ '25	29.00457 AU	opposition	-2932 May 02 j 10:21	17° $\underline{04}$ '35	8°28'05
direct	-2940 Jul 01 j 11:43	26° $\overline{47}$ '44		direct	-2932 Jul 21 j 08:44	15° $\underline{43}$ '39	
conjunction	-2940 Oct 14 j 23:43	29° $\overline{25}$ '36	12°02'47	conjunction	-2932 Nov 02 j 07:02	18° $\underline{10}$ '56	7°38'51
minimum elong	-2940 Oct 15 j 00:08	29° $\overline{25}$ '38	12°02'46	minimum elong	-2932 Nov 02 j 07:20	18° $\underline{10}$ '57	7°38'49
max. Earth dist.	-2940 Oct 15 j 13:16	29° $\overline{26}$ '56	31.00354 AU	max. Earth dist.	-2932 Nov 03 j 20:33	18° $\underline{14}$ '26	32.07672 AU
retrograde	-2940 Oct 29 j 14:32	0° $\underline{01}$ '44		retrograde	-2931 Feb 14 j 05:27	20° $\underline{38}$ '26	
opposition	-2939 Jan 26 j 23:18	2° $\underline{39}$ '24	12°36'11	min. Earth dist.	-2931 May 03 j 08:36	19° $\underline{20}$ '46	30.17990 AU
min. Earth dist.	-2939 Apr 15 j 10:59	0° $\underline{40}$ '22	29.09820 AU	opposition	-2931 May 05 j 00:25	19° $\underline{18}$ '10	7°50'21
direct	-2939 May 10 j 13:46	30° $\overline{15}$ '53		direct	-2931 Jul 23 j 23:51	17° $\underline{57}$ '41	
conjunction	-2939 Oct 17 j 15:08	1° $\underline{52}$ '33	11°32'30	conjunction	-2931 Nov 04 j 16:41	20° $\underline{23}$ '37	7°03'29
minimum elong	-2939 Oct 17 j 15:32	1° $\underline{52}$ '35	11°32'31	minimum elong	-2931 Nov 04 j 16:58	20° $\underline{23}$ '39	7°03'27
max. Earth dist.	-2939 Oct 18 j 07:50	1° $\underline{54}$ '11	31.10560 AU	max. Earth dist.	-2931 Nov 06 j 09:27	20° $\underline{27}$ '24	32.25152 AU
retrograde	-2938 Jan 29 j 14:37	4° $\underline{27}$ '42		retrograde	-2930 Feb 16 j 16:35	22° $\underline{50}$ '00	
opposition	-2938 Apr 18 j 06:14	3° $\underline{05}$ '36	12°03'11	min. Earth dist.	-2930 May 05 j 20:21	21° $\underline{32}$ '46	30.35581 AU
min. Earth dist.	-2938 Apr 17 j 12:21	3° $\underline{06}$ '48	29.20070 AU	opposition	-2930 May 07 j 13:53	21° $\underline{30}$ '04	7°12'21
direct	-2938 Jul 07 j 05:12	1° $\underline{42}$ '24		direct	-2930 Jul 26 j 13:05	20° $\underline{10}$ '03	
conjunction	-2938 Oct 20 j 05:55	4° $\underline{17}$ '48	11°01'16	conjunction	-2930 Nov 07 j 01:48	22° $\underline{34}$ '38	6°27'53
				minimum elong	-2930 Nov 07 j 02:04	22° $\underline{34}$ '39	6°27'51
				max. Earth dist.	-2930 Nov 08 j 20:49	22° $\underline{38}$ '35	32.43374 AU
				retrograde	-2929 Feb 19 j 01:56	24° $\underline{59}$ '51	



## Planetary Phenomena of Pluto from -3400 through -2900 (UT), Astrodienst AG 7-Dez-2017 14:40, page 30

Attention, astronomical year style is used: The year -2929 in astronomical counting style is the year 2930 BCE in historical counting style.

min. Earth dist.	-2929 May 08 j 05:38	23° <del>4</del> 43'10	30.53875 AU	min. Earth dist.	-2921 May 24 j 15:19	10° <del>0</del> 01'07	32.19554 AU
opposition	-2929 May 10 j 02:15	23° <del>4</del> 40'17	6°34'11	opposition	-2921 May 27 j 03:31	9° <del>0</del> 57'24	1°32'19
direct	-2929 Jul 29 j 02:52	22° <del>4</del> 20'43		direct	-2921 Aug 15 j 07:03	8° <del>0</del> 41'01	
conjunction	-2929 Nov 09 j 10:10	24° <del>4</del> 43'57	5°52'10	conjunction	-2921 Nov 25 j 04:27	10° <del>0</del> 53'27	1°09'54
minimum elong	-2929 Nov 09 j 10:25	24° <del>4</del> 43'58	5°52'09	minimum elong	-2921 Nov 25 j 04:30	10° <del>0</del> 53'27	1°09'51
max. Earth dist.	-2929 Nov 11 j 07:10	24° <del>4</del> 48'03	32.62229 AU	max. Earth dist.	-2921 Nov 27 j 17:20	10° <del>0</del> 58'39	34.31049 AU
retrograde	-2928 Feb 21 j 10:48	27° <del>4</del> 08'02		retrograde	-2920 Mar 08 j 02:34	13° <del>0</del> 08'09	
min. Earth dist.	-2928 May 09 j 15:46	25° <del>4</del> 51'47	30.72808 AU	min. Earth dist.	-2920 May 25 j 18:44	11° <del>0</del> 55'14	32.42598 AU
opposition	-2928 May 11 j 14:13	25° <del>4</del> 48'48	5°55'57	opposition	-2920 May 28 j 09:13	11° <del>0</del> 51'23	0°55'55
direct	-2928 Jul 30 j 14:54	24° <del>4</del> 29'41		direct	-2920 Aug 16 j 14:13	10° <del>0</del> 35'25	
conjunction	-2928 Nov 10 j 17:55	26° <del>4</del> 51'33	5°16'24	conjunction	-2920 Nov 26 j 06:29	12° <del>0</del> 46'36	0°35'52
minimum elong	-2928 Nov 10 j 18:08	26° <del>4</del> 51'34	5°16'21	minimum elong	-2920 Nov 26 j 06:31	12° <del>0</del> 46'36	0°35'48
max. Earth dist.	-2928 Nov 12 j 17:37	26° <del>4</del> 55'52	32.81662 AU	max. Earth dist.	-2920 Nov 28 j 20:39	12° <del>0</del> 51'52	34.54379 AU
retrograde	-2927 Feb 22 j 17:40	29° <del>4</del> 14'27			-2919 Mar 06 j 07:58	15° <del>0</del>	
min. Earth dist.	-2927 May 12 j 00:51	27° <del>4</del> 58'40	30.92286 AU	retrograde	-2919 Mar 10 j 05:11	15° <del>0</del> 00'13	
opposition	-2927 May 14 j 01:23	27° <del>4</del> 55'34	5°17'44		-2919 Mar 14 j 01:53	15° <del>0</del> 51'23	
direct	-2927 Aug 02 j 04:36	26° <del>4</del> 36'53		min. Earth dist.	-2919 May 27 j 21:59	13° <del>0</del> 47'43	32.66143 AU
conjunction	-2927 Nov 13 j 00:57	28° <del>4</del> 57'23	4°40'39	opposition	-2919 May 30 j 14:22	13° <del>0</del> 43'47	0°19'58
minimum elong	-2927 Nov 13 j 01:09	28° <del>4</del> 57'24	4°40'37	direct	-2919 Aug 18 j 19:31	12° <del>0</del> 28'14	
max. Earth dist.	-2927 Nov 15 j 01:45	29° <del>4</del> 01'46	33.01589 AU	conjunction	-2919 Nov 28 j 08:15	14° <del>0</del> 38'12	0°02'18
	-2927 Dec 13 j 02:03	0° <del>0</del>		minimum elong	-2919 Nov 28 j 08:14	14° <del>0</del> 38'12	0°02'15
retrograde	-2926 Feb 25 j 01:16	1° <del>0</del> 19'07		behind sun begin	-2919 Nov 28 j 01:53	14° <del>0</del> 37'41	
min. Earth dist.	-2926 May 14 j 08:45	0° <del>0</del> 03'47	31.12275 AU	behind sun end	-2919 Nov 28 j 14:36	14° <del>0</del> 38'42	
opposition	-2926 May 16 j 11:42	0° <del>0</del> 00'33	4°39'35	max. Earth dist.	-2919 Dec 01 j 01:01	14° <del>0</del> 43'39	34.78154 AU
	-2926 May 16 j 20:20	30° <del>0</del> 51'47			-2919 Dec 09 j 04:11	15° <del>0</del>	
direct	-2926 Aug 04 j 14:29	28° <del>4</del> 42'16		desc. node	-2919 Dec 22 j 21:53	15° <del>0</del> 26'42	
	-2926 Oct 16 j 14:52	0° <del>0</del>		retrograde	-2918 Mar 12 j 04:56	16° <del>0</del> 50'45	
conjunction	-2926 Nov 15 j 07:26	1° <del>0</del> 01'23	4°04'59	min. Earth dist.	-2918 May 30 j 01:14	15° <del>0</del> 38'39	32.90103 AU
minimum elong	-2926 Nov 15 j 07:36	1° <del>0</del> 01'24	4°04'56	opposition	-2918 Jun 01 j 18:39	15° <del>0</del> 34'40	0°-15'-27
max. Earth dist.	-2926 Nov 17 j 11:02	1° <del>0</del> 06'00	33.21979 AU		-2918 Jun 26 j 11:05	15° <del>0</del> 51'23	
retrograde	-2925 Feb 27 j 04:40	3° <del>0</del> 21'56		direct	-2918 Aug 21 j 02:08	14° <del>0</del> 19'32	
min. Earth dist.	-2925 May 16 j 17:11	2° <del>0</del> 06'58	31.32719 AU		-2918 Oct 12 j 20:34	15° <del>0</del>	
opposition	-2925 May 18 j 21:16	2° <del>0</del> 03'41	4°01'36	conjunction	-2918 Nov 30 j 09:15	16° <del>0</del> 28'19	0°-30'-55
direct	-2925 Aug 07 j 01:34	0° <del>0</del> 45'48		minimum elong	-2918 Nov 30 j 09:14	16° <del>0</del> 28'19	0°31'01
conjunction	-2925 Nov 17 j 12:57	3° <del>0</del> 03'31	3°29'28	max. Earth dist.	-2918 Dec 03 j 02:28	16° <del>0</del> 33'46	35.02291 AU
minimum elong	-2925 Nov 17 j 13:06	3° <del>0</del> 03'32	3°29'26	retrograde	-2917 Mar 14 j 06:58	18° <del>0</del> 39'49	
max. Earth dist.	-2925 Nov 19 j 17:19	3° <del>0</del> 08'10	33.42806 AU	min. Earth dist.	-2917 Jun 01 j 02:38	17° <del>0</del> 28'12	33.14416 AU
retrograde	-2924 Feb 29 j 10:26	5° <del>0</del> 22'53		opposition	-2917 Jun 03 j 22:21	17° <del>0</del> 24'06	0°-50'-22
min. Earth dist.	-2924 May 17 j 23:00	4° <del>0</del> 08'22	31.53640 AU	direct	-2917 Aug 23 j 05:17	16° <del>0</del> 09'23	
opposition	-2924 May 20 j 05:57	4° <del>0</del> 04'55	3°23'49	conjunction	-2917 Dec 02 j 09:47	18° <del>0</del> 17'00	-1°-3'-36
direct	-2924 Aug 08 j 09:32	2° <del>0</del> 47'24		minimum elong	-2917 Dec 02 j 09:44	18° <del>0</del> 17'00	1°03'40
conjunction	-2924 Nov 18 j 17:53	5° <del>0</del> 03'46	2°54'09	max. Earth dist.	-2917 Dec 05 j 05:18	18° <del>0</del> 22'36	35.26708 AU
minimum elong	-2924 Nov 18 j 18:00	5° <del>0</del> 03'46	2°54'06	retrograde	-2916 Mar 15 j 06:01	20° <del>0</del> 27'30	
max. Earth dist.	-2924 Nov 21 j 01:07	5° <del>0</del> 08'36	33.64095 AU	min. Earth dist.	-2916 Jun 02 j 05:40	19° <del>0</del> 16'13	33.38986 AU
retrograde	-2923 Mar 02 j 14:14	7° <del>0</del> 21'56		opposition	-2916 Jun 05 j 01:32	19° <del>0</del> 12'08	-1°-24'-43
min. Earth dist.	-2923 May 20 j 06:10	6° <del>0</del> 07'44	31.75070 AU	direct	-2916 Aug 24 j 08:50	17° <del>0</del> 57'50	
opposition	-2923 May 22 j 14:03	6° <del>0</del> 04'15	2°46'19	conjunction	-2916 Dec 03 j 09:51	20° <del>0</del> 04'19	-1°-35'-45
direct	-2923 Aug 10 j 17:18	4° <del>0</del> 47'06		minimum elong	-2916 Dec 03 j 09:47	20° <del>0</del> 04'19	1°35'51
conjunction	-2923 Nov 20 j 22:00	7° <del>0</del> 02'07	2°19'05	max. Earth dist.	-2916 Dec 06 j 05:38	20° <del>0</del> 09'54	35.51340 AU
minimum elong	-2923 Nov 20 j 22:05	7° <del>0</del> 02'07	2°19'02	retrograde	-2915 Mar 17 j 07:23	22° <del>0</del> 13'48	
max. Earth dist.	-2923 Nov 23 j 06:38	7° <del>0</del> 07'02	33.85893 AU	min. Earth dist.	-2915 Jun 04 j 06:08	21° <del>0</del> 02'57	33.63750 AU
retrograde	-2922 Mar 04 j 19:20	9° <del>0</del> 19'07		opposition	-2915 Jun 07 j 04:00	20° <del>0</del> 58'47	-1°-58'-29
min. Earth dist.	-2922 May 22 j 10:15	8° <del>0</del> 05'22	31.97035 AU	direct	-2915 Aug 26 j 10:16	19° <del>0</del> 44'52	
opposition	-2922 May 24 j 21:10	8° <del>0</del> 01'43	2°09'08	conjunction	-2915 Dec 05 j 09:22	21° <del>0</del> 50'15	-2°-7'-23
direct	-2922 Aug 13 j 01:20	6° <del>0</del> 44'57		minimum elong	-2915 Dec 05 j 09:18	21° <del>0</del> 50'15	2°07'28
conjunction	-2922 Nov 23 j 01:30	8° <del>0</del> 58'39	1°44'19	max. Earth dist.	-2915 Dec 08 j 06:33	21° <del>0</del> 55'54	35.76098 AU
minimum elong	-2922 Nov 23 j 01:34	8° <del>0</del> 58'39	1°44'15	retrograde	-2914 Mar 19 j 08:07	23° <del>0</del> 58'45	
max. Earth dist.	-2922 Nov 25 j 12:21	9° <del>0</del> 03'43	34.08203 AU	min. Earth dist.	-2914 Jun 06 j 08:04	22° <del>0</del> 48'12	33.88636 AU
retrograde	-2921 Mar 07 j 00:18	11° <del>0</del> 14'30		opposition	-2914 Jun 09 j 06:00	22° <del>0</del> 44'03	-2°-31'-39
				direct	-2914 Aug 28 j 10:28	21° <del>0</del> 30'32	



Attention, astronomical year style is used: The year -2914 in astronomical counting style is the year 2915 BCE in historical counting style.

conjunction	-2914 Dec 07 j 08:32	23°M34'49	-2°-38'-28	direct	-2906 Sep 11 j 07:50	4°♂46'21	
minimum elong	-2914 Dec 07 j 08:26	23°M34'48	2°38'34				
max. Earth dist.	-2914 Dec 10 j 06:31	23°M40'29	36.00943 AU	conjunction	-2906 Dec 20 j 05:43	6°♂42'41	-6°-25'-36
retrograde	-2913 Mar 21 j 06:46	25°M42'18		minimum elong	-2906 Dec 20 j 05:31	6°♂42'40	6°25'42
min. Earth dist.	-2913 Jun 08 j 07:55	24°M32'08	34.13587 AU	max. Earth dist.	-2906 Dec 23 j 10:18	6°♂48'32	38.03646 AU
opposition	-2913 Jun 11 j 07:05	24°M27'56	-3°-4'-12	retrograde	-2905 Apr 03 j 05:25	8°♂42'54	
direct	-2913 Aug 30 j 13:37	23°M14'45		min. Earth dist.	-2905 Jun 21 j 14:06	7°♂35'20	36.17932 AU
				opposition	-2905 Jun 24 j 20:04	7°♂30'55	-7°00'-40
conjunction	-2913 Dec 09 j 06:57	25°M17'58	-3°-8'-59	direct	-2905 Sep 13 j 03:43	6°♂20'27	
minimum elong	-2913 Dec 09 j 06:51	25°M17'57	3°09'04				
max. Earth dist.	-2913 Dec 12 j 05:11	25°M23'36	36.25835 AU	conjunction	-2905 Dec 22 j 00:29	8°♂15'55	-6°-51'-10
retrograde	-2912 Mar 22 j 06:10	27°M24'28		minimum elong	-2905 Dec 22 j 00:18	8°♂15'54	6°51'16
min. Earth dist.	-2912 Jun 09 j 07:49	26°M14'37	34.38628 AU	max. Earth dist.	-2905 Dec 25 j 06:32	8°♂21'50	38.29451 AU
opposition	-2912 Jun 12 j 07:50	26°M10'23	-3°-36'-6	retrograde	-2904 Apr 03 j 22:11	10°♂15'20	
direct	-2912 Aug 31 j 14:41	24°M57'33		min. Earth dist.	-2904 Jun 22 j 10:50	9°♂08'03	36.43898 AU
				opposition	-2904 Jun 25 j 16:26	9°♂03'39	-7°-27'-9
conjunction	-2912 Dec 10 j 04:50	26°M59'41	-3°-38'-55	direct	-2904 Sep 14 j 01:43	7°♂53'32	
minimum elong	-2912 Dec 10 j 04:42	26°M59'41	3°39'01				
max. Earth dist.	-2912 Dec 13 j 04:53	27°M05'26	36.50811 AU	conjunction	-2904 Dec 22 j 18:43	9°♂48'09	-7°-16'-7
retrograde	-2911 Mar 24 j 02:21	29°M05'13		minimum elong	-2904 Dec 22 j 18:30	9°♂48'08	7°16'13
min. Earth dist.	-2911 Jun 11 j 07:34	27°M55'39	34.63765 AU	max. Earth dist.	-2904 Dec 26 j 00:05	9°♂53'59	38.55193 AU
opposition	-2911 Jun 14 j 07:54	27°M51'25	-4°-7'-22	retrograde	-2903 Apr 05 j 15:27	11°♂46'47	
direct	-2911 Sep 02 j 17:08	26°M38'54		min. Earth dist.	-2903 Jun 24 j 05:40	10°♂39'50	36.69777 AU
				opposition	-2903 Jun 27 j 12:22	10°♂35'24	-7°-52'-57
conjunction	-2911 Dec 12 j 02:09	28°M40'00	-4°-8'-15	direct	-2903 Sep 15 j 22:44	9°♂25'36	
minimum elong	-2911 Dec 12 j 02:01	28°M39'59	4°08'20				
max. Earth dist.	-2911 Dec 15 j 02:12	28°M45'42	36.75897 AU	conjunction	-2903 Dec 24 j 12:50	11°♂19'23	-7°-40'-27
	-2910 Jan 26 j 20:58	0°♂		minimum elong	-2903 Dec 24 j 12:38	11°♂19'22	7°40'33
retrograde	-2910 Mar 25 j 22:55	0°♂44'34		max. Earth dist.	-2903 Dec 27 j 19:14	11°♂25'15	38.80791 AU
	-2910 May 26 j 00:48	30°R♂		retrograde	-2902 Apr 07 j 08:35	13°♂17'14	
min. Earth dist.	-2910 Jun 13 j 05:02	29°M35'22	34.89063 AU	min. Earth dist.	-2902 Jun 26 j 02:09	12°♂10'29	36.95489 AU
opposition	-2910 Jun 16 j 07:12	29°M31'03	-4°-37'-58	opposition	-2902 Jun 29 j 07:47	12°♂06'08	-8°-18'-6
direct	-2910 Sep 04 j 16:39	28°M18'52		direct	-2902 Sep 17 j 18:49	10°♂56'38	
	-2910 Dec 03 j 20:53	0°♂					
conjunction	-2910 Dec 13 j 23:03	0°♂18'57	-4°-36'-59	conjunction	-2902 Dec 26 j 06:34	12°♂49'36	-8°-4'-10
minimum elong	-2910 Dec 13 j 22:54	0°♂18'56	4°37'05	minimum elong	-2902 Dec 26 j 06:22	12°♂49'35	8°04'15
max. Earth dist.	-2910 Dec 17 j 01:06	0°♂24'47	37.01136 AU	max. Earth dist.	-2902 Dec 29 j 12:25	12°♂55'23	39.06203 AU
retrograde	-2909 Mar 27 j 17:54	2°♂22'37		retrograde	-2901 Apr 09 j 02:35	14°♂46'40	
min. Earth dist.	-2909 Jun 15 j 03:57	1°♂13'40	35.14534 AU	min. Earth dist.	-2901 Jun 27 j 20:17	13°♂40'13	37.20986 AU
opposition	-2909 Jun 18 j 06:04	1°♂09'22	-5°-7'-53	opposition	-2901 Jul 01 j 02:44	13°♂35'50	-8°-42'-35
	-2909 Aug 24 j 07:59	30°R♂		direct	-2901 Sep 19 j 13:32	12°♂26'37	
direct	-2909 Sep 06 j 16:33	29°M57'32					
	-2909 Sep 19 j 18:36	0°♂		conjunction	-2901 Dec 27 j 23:42	14°♂18'45	-8°-27'-16
				minimum elong	-2901 Dec 27 j 23:29	14°♂18'44	8°27'23
conjunction	-2909 Dec 15 j 19:18	1°♂56'37	-5°-5'-5	max. Earth dist.	-2901 Dec 31 j 05:27	14°♂24'29	39.31380 AU
minimum elong	-2909 Dec 15 j 19:09	1°♂56'36	5°05'10	retrograde	-2900 Apr 09 j 21:17	16°♂15'03	
max. Earth dist.	-2909 Dec 18 j 21:36	2°♂02'25	37.26555 AU	min. Earth dist.	-2900 Jun 28 j 15:34	15°♂08'47	37.46274 AU
retrograde	-2908 Mar 28 j 15:02	3°♂59'23		opposition	-2900 Jul 01 j 21:28	15°♂04'27	-9°-6'-24
min. Earth dist.	-2908 Jun 16 j 00:12	2°♂50'50	35.40187 AU	direct	-2900 Sep 20 j 07:08	13°♂55'30	
opposition	-2908 Jun 19 j 04:19	2°♂46'27	-5°-37'-7				
direct	-2908 Sep 07 j 13:40	1°♂34'57		conjunction	-2900 Dec 28 j 16:39	15°♂46'50	-8°-49'-46
				minimum elong	-2900 Dec 28 j 16:26	15°♂46'49	8°49'52
conjunction	-2908 Dec 16 j 15:11	3°♂33'05	-5°-32'-33				
minimum elong	-2908 Dec 16 j 15:00	3°♂33'04	5°32'39				
max. Earth dist.	-2908 Dec 19 j 18:43	3°♂38'56	37.52133 AU				
retrograde	-2907 Mar 30 j 12:05	5°♂34'59					
min. Earth dist.	-2907 Jun 17 j 21:57	4°♂26'44	35.66012 AU				
opposition	-2907 Jun 21 j 02:10	4°♂22'21	-6°-5'-40				
direct	-2907 Sep 09 j 10:09	3°♂11'12					
conjunction	-2907 Dec 18 j 10:42	5°♂08'25	-5°-59'-23				
minimum elong	-2907 Dec 18 j 10:31	5°♂08'24	5°59'29				
max. Earth dist.	-2907 Dec 21 j 15:20	5°♂14'19	37.77859 AU				
retrograde	-2906 Apr 01 j 08:28	7°♂09'28					
min. Earth dist.	-2906 Jun 19 j 18:08	6°♂01'34	35.91942 AU				
opposition	-2906 Jun 22 j 23:21	5°♂57'09	-6°-33'-31				



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 1

Attention, astronomical year style is used: The year -2900 in astronomical counting style is the year 2901 BCE in historical counting style.

retrograde	-2900 Apr 09 j 21:17	16° $\mathring{A}$ 15'03		min. Earth dist.	-2892 Jul 10 j 04:43	26° $\mathring{A}$ 23'00	39.44386 AU
min. Earth dist.	-2900 Jun 28 j 15:34	15° $\mathring{A}$ 08'47	37.46274 AU	opposition	-2892 Jul 13 j 10:44	26° $\mathring{A}$ 18'48	-11°-53'-33
opposition	-2900 Jul 01 j 21:28	15° $\mathring{A}$ 04'27	-9°-6'-24	direct	-2892 Oct 01 j 22:02	25° $\mathring{A}$ 11'58	
direct	-2900 Sep 20 j 07:08	13° $\mathring{A}$ 55'30					
				conjunction	-2891 Jan 08 j 18:40	26° $\mathring{A}$ 57'46	-11°-27'-55
conjunction	-2900 Dec 28 j 16:39	15° $\mathring{A}$ 46'50	-8°-49'-46	minimum elong	-2891 Jan 08 j 18:28	26° $\mathring{A}$ 57'45	11°28'01
minimum elong	-2900 Dec 28 j 16:26	15° $\mathring{A}$ 46'49	8°49'52	max. Earth dist.	-2891 Jan 12 j 01:17	27° $\mathring{A}$ 03'16	41.52278 AU
max. Earth dist.	-2900 Dec 31 j 23:05	15° $\mathring{A}$ 52'35	39.56363 AU	retrograde	-2891 Apr 22 j 15:28	28° $\mathring{A}$ 48'00	
retrograde	-2899 Apr 11 j 13:50	17° $\mathring{A}$ 42'21		min. Earth dist.	-2891 Jul 11 j 19:12	27° $\mathring{A}$ 43'53	39.68500 AU
min. Earth dist.	-2899 Jun 30 j 09:39	16° $\mathring{A}$ 36'18	37.71371 AU	opposition	-2891 Jul 15 j 01:43	27° $\mathring{A}$ 39'40	-12°-11'-37
opposition	-2899 Jul 03 j 15:30	16° $\mathring{A}$ 31'59	-9°-29'-35	direct	-2891 Oct 03 j 13:01	26° $\mathring{A}$ 33'06	
direct	-2899 Sep 22 j 02:02	15° $\mathring{A}$ 23'17					
				conjunction	-2890 Jan 10 j 08:46	28° $\mathring{A}$ 18'18	-11°-45'-4
conjunction	-2899 Dec 30 j 09:02	17° $\mathring{A}$ 13'50	-9°-11'-40	minimum elong	-2890 Jan 10 j 08:33	28° $\mathring{A}$ 18'17	11°45'11
minimum elong	-2899 Dec 30 j 08:49	17° $\mathring{A}$ 13'49	9°11'47	max. Earth dist.	-2890 Jan 13 j 15:47	28° $\mathring{A}$ 23'48	41.76018 AU
max. Earth dist.	-2898 Jan 02 j 14:44	17° $\mathring{A}$ 19'29	39.81177 AU		-2890 Mar 29 j 16:04	0° $\mathring{A}$	
retrograde	-2898 Apr 13 j 07:06	19° $\mathring{A}$ 08'36		retrograde	-2890 Apr 24 j 03:17	0° $\mathring{A}$ 07'57	
min. Earth dist.	-2898 Jul 02 j 02:39	18° $\mathring{A}$ 02'47	37.96344 AU		-2890 May 20 j 02:56	30° $\mathring{R}$ $\mathring{A}$	
opposition	-2898 Jul 05 j 09:10	17° $\mathring{A}$ 58'28	-9°-52'-6	min. Earth dist.	-2890 Jul 13 j 11:37	29° $\mathring{A}$ 03'59	39.92290 AU
direct	-2898 Sep 23 j 19:19	16° $\mathring{A}$ 50'00		opposition	-2890 Jul 16 j 16:31	28° $\mathring{A}$ 59'52	-12°-29'-7
				direct	-2890 Oct 05 j 06:11	27° $\mathring{A}$ 53'33	
conjunction	-2897 Jan 01 j 01:09	18° $\mathring{A}$ 39'47	-9°-32'-57				
minimum elong	-2897 Jan 01 j 00:56	18° $\mathring{A}$ 39'46	9°33'03	conjunction	-2889 Jan 11 j 22:36	29° $\mathring{A}$ 38'08	-12°-1'-41
max. Earth dist.	-2897 Jan 04 j 08:05	18° $\mathring{A}$ 45'30	40.05877 AU	minimum elong	-2889 Jan 11 j 22:24	29° $\mathring{A}$ 38'07	12°01'47
retrograde	-2897 Apr 14 j 19:53	20° $\mathring{A}$ 33'50		max. Earth dist.	-2889 Jan 15 j 04:36	29° $\mathring{A}$ 43'33	41.99419 AU
min. Earth dist.	-2897 Jul 03 j 20:33	19° $\mathring{A}$ 28'12	38.21219 AU		-2889 Jan 25 j 04:28	0° $\mathring{A}$	
opposition	-2897 Jul 07 j 02:19	19° $\mathring{A}$ 23'56	-10°-13'-57	retrograde	-2889 Apr 25 j 17:28	1° $\mathring{A}$ 27'12	
direct	-2897 Sep 25 j 15:07	18° $\mathring{A}$ 15'43		min. Earth dist.	-2889 Jul 15 j 01:40	0° $\mathring{A}$ 23'28	40.15709 AU
				opposition	-2889 Jul 18 j 06:48	0° $\mathring{A}$ 19'21	-12°-46'-3
conjunction	-2896 Jan 02 j 16:51	20° $\mathring{A}$ 04'46	-9°-53'-36		-2889 Aug 02 j 15:08	30° $\mathring{R}$ $\mathring{A}$	
minimum elong	-2896 Jan 02 j 16:38	20° $\mathring{A}$ 04'45	9°53'43	direct	-2889 Oct 06 j 20:31	29° $\mathring{A}$ 13'15	
max. Earth dist.	-2896 Jan 05 j 23:11	20° $\mathring{A}$ 10'25	40.30513 AU		-2889 Dec 07 j 20:43	0° $\mathring{A}$	
retrograde	-2896 Apr 15 j 11:03	21° $\mathring{A}$ 58'07					
min. Earth dist.	-2896 Jul 04 j 12:06	20° $\mathring{A}$ 52'48	38.46042 AU	conjunction	-2888 Jan 13 j 12:05	0° $\mathring{A}$ 57'15	-12°-17'-46
opposition	-2896 Jul 07 j 19:07	20° $\mathring{A}$ 48'28	-10°-35'-9	minimum elong	-2888 Jan 13 j 11:53	0° $\mathring{A}$ 57'14	12°17'53
direct	-2896 Sep 26 j 08:28	19° $\mathring{A}$ 40'31		max. Earth dist.	-2888 Jan 16 j 17:22	1° $\mathring{A}$ 02'34	42.22443 AU
				retrograde	-2888 Apr 26 j 08:42	2° $\mathring{A}$ 45'43	
conjunction	-2895 Jan 03 j 08:08	21° $\mathring{A}$ 28'52	-10°-13'-40	min. Earth dist.	-2888 Jul 15 j 17:00	1° $\mathring{A}$ 42'06	40.38769 AU
minimum elong	-2895 Jan 03 j 07:55	21° $\mathring{A}$ 28'51	10°13'45	opposition	-2888 Jul 18 j 21:02	1° $\mathring{A}$ 38'04	-13°-2'-25
max. Earth dist.	-2895 Jan 06 j 15:17	21° $\mathring{A}$ 34'32	40.55087 AU	direct	-2888 Oct 07 j 08:42	0° $\mathring{A}$ 32'10	
retrograde	-2895 Apr 17 j 03:27	23° $\mathring{A}$ 21'34					
min. Earth dist.	-2895 Jul 06 j 05:22	22° $\mathring{A}$ 16'26	38.70808 AU	conjunction	-2887 Jan 14 j 01:20	2° $\mathring{A}$ 15'34	-12°-33'-20
opposition	-2895 Jul 09 j 11:41	22° $\mathring{A}$ 12'10	-10°-55'-42	minimum elong	-2887 Jan 14 j 01:09	2° $\mathring{A}$ 15'33	12°33'26
direct	-2895 Sep 27 j 23:55	21° $\mathring{A}$ 04'30		max. Earth dist.	-2887 Jan 17 j 06:52	2° $\mathring{A}$ 20'52	42.45123 AU
				retrograde	-2887 Apr 27 j 21:28	4° $\mathring{A}$ 03'26	
conjunction	-2894 Jan 04 j 23:18	22° $\mathring{A}$ 52'10	-10°-33'-6	min. Earth dist.	-2887 Jul 17 j 07:17	2° $\mathring{A}$ 59'58	40.61478 AU
minimum elong	-2894 Jan 04 j 23:06	22° $\mathring{A}$ 52'09	10°33'13	opposition	-2887 Jul 20 j 10:45	2° $\mathring{A}$ 55'59	-13°-18'-15
max. Earth dist.	-2894 Jan 08 j 06:42	22° $\mathring{A}$ 57'49	40.79602 AU	direct	-2887 Oct 08 j 23:22	1° $\mathring{A}$ 50'16	
retrograde	-2894 Apr 18 j 18:46	24° $\mathring{A}$ 44'12					
min. Earth dist.	-2894 Jul 07 j 20:39	23° $\mathring{A}$ 39'22	38.95479 AU	conjunction	-2886 Jan 15 j 14:14	3° $\mathring{A}$ 33'04	-12°-48'-22
opposition	-2894 Jul 11 j 03:32	23° $\mathring{A}$ 35'05	-11°-15'-36	minimum elong	-2886 Jan 15 j 14:02	3° $\mathring{A}$ 33'03	12°48'29
direct	-2894 Sep 29 j 15:37	22° $\mathring{A}$ 27'41		max. Earth dist.	-2886 Jan 18 j 18:17	3° $\mathring{A}$ 38'15	42.67484 AU
				retrograde	-2886 Apr 29 j 10:39	5° $\mathring{A}$ 20'20	
conjunction	-2893 Jan 06 j 14:00	24° $\mathring{A}$ 14'43	-10°-51'-57	min. Earth dist.	-2886 Jul 18 j 20:29	4° $\mathring{A}$ 17'02	40.83915 AU
minimum elong	-2893 Jan 06 j 13:47	24° $\mathring{A}$ 14'42	10°52'03	opposition	-2886 Jul 22 j 00:02	4° $\mathring{A}$ 13'04	-13°-33'-32
max. Earth dist.	-2893 Jan 09 j 20:50	24° $\mathring{A}$ 20'17	41.04000 AU	direct	-2886 Oct 10 j 12:19	3° $\mathring{A}$ 07'31	
retrograde	-2893 Apr 20 j 11:54	26° $\mathring{A}$ 06'08					
min. Earth dist.	-2893 Jul 09 j 12:31	25° $\mathring{A}$ 01'32	39.20031 AU	conjunction	-2885 Jan 17 j 02:54	4° $\mathring{A}$ 49'46	-13°-2'-53
opposition	-2893 Jul 12 j 19:19	24° $\mathring{A}$ 57'17	-11°-34'-53	minimum elong	-2885 Jan 17 j 02:44	4° $\mathring{A}$ 49'45	13°03'00
direct	-2893 Oct 01 j 05:22	23° $\mathring{A}$ 50'10		max. Earth dist.	-2885 Jan 20 j 07:47	4° $\mathring{A}$ 54'58	42.89596 AU
				retrograde	-2885 Apr 30 j 21:06	6° $\mathring{A}$ 36'27	
conjunction	-2892 Jan 08 j 04:26	25° $\mathring{A}$ 36'35	-11°-10'-13	min. Earth dist.	-2885 Jul 20 j 10:52	5° $\mathring{A}$ 33'15	41.06121 AU
minimum elong	-2892 Jan 08 j 04:13	25° $\mathring{A}$ 36'34	11°10'20	opposition	-2885 Jul 23 j 13:08	5° $\mathring{A}$ 29'21	-13°-48'-15
max. Earth dist.	-2892 Jan 11 j 12:17	25° $\mathring{A}$ 42'11	41.28248 AU	direct	-2885 Oct 12 j 03:10	4° $\mathring{A}$ 23'59	
retrograde	-2892 Apr 21 j 01:28	27° $\mathring{A}$ 27'23					



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 2

Attention, astronomical year style is used: The year -2884 in astronomical counting style is the year 2885 BCE in historical counting style.

conjunction	-2884 Jan 18 j 15:05	6°☾05'40	-13°-16'-52	retrograde	-2876 May 11 j 05:37	17°☾34'06	
minimum elong	-2884 Jan 18 j 14:54	6°☾05'39	13°16'59	min. Earth dist.	-2876 Jul 31 j 01:20	16°☾32'23	42.95634 AU
max. Earth dist.	-2884 Jan 21 j 19:09	6°☾10'48	43.11519 AU	opposition	-2876 Aug 02 j 22:59	16°☾28'49	-15°-37'-2
retrograde	-2884 May 01 j 07:23	7°☾51'49		direct	-2876 Oct 22 j 12:30	15°☾25'15	
min. Earth dist.	-2884 Jul 20 j 22:45	6°☾48'50	41.28149 AU				
opposition	-2884 Jul 24 j 01:54	6°☾44'53	-14°-2'-24	conjunction	-2875 Jan 28 j 20:56	17°☾02'44	-15°00'-29
direct	-2884 Oct 12 j 17:37	5°☾39'43		minimum elong	-2875 Jan 28 j 20:49	17°☾02'43	15°00'36
				max. Earth dist.	-2875 Jan 31 j 20:46	17°☾07'22	44.98106 AU
conjunction	-2883 Jan 19 j 03:09	7°☾20'51	-13°-30'-20	retrograde	-2875 May 12 j 15:39	18°☾44'39	
minimum elong	-2883 Jan 19 j 02:59	7°☾20'50	13°30'26	min. Earth dist.	-2875 Aug 01 j 13:15	17°☾43'01	43.14847 AU
max. Earth dist.	-2883 Jan 22 j 07:15	7°☾25'57	43.33268 AU	opposition	-2875 Aug 04 j 09:27	17°☾39'32	-15°-46'-46
retrograde	-2883 May 02 j 20:03	9°☾06'29		direct	-2875 Oct 23 j 23:26	16°☾36'07	
min. Earth dist.	-2883 Jul 22 j 12:19	8°☾03'37	41.50017 AU				
opposition	-2883 Jul 25 j 14:25	7°☾59'44	-14°-16'-1	conjunction	-2874 Jan 30 j 07:16	18°☾13'10	-15°-9'-46
direct	-2883 Oct 14 j 06:07	6°☾54'46		minimum elong	-2874 Jan 30 j 07:10	18°☾13'10	15°09'52
				max. Earth dist.	-2874 Feb 02 j 05:19	18°☾17'41	45.16983 AU
conjunction	-2882 Jan 20 j 15:06	8°☾35'23	-13°-43'-17	retrograde	-2874 May 14 j 00:28	19°☾54'39	
minimum elong	-2882 Jan 20 j 14:56	8°☾35'22	13°43'22	min. Earth dist.	-2874 Aug 02 j 23:27	18°☾53'10	43.33688 AU
max. Earth dist.	-2882 Jan 23 j 19:19	8°☾40'28	43.54869 AU	opposition	-2874 Aug 05 j 19:43	18°☾49'41	-15°-56'-3
retrograde	-2882 May 04 j 08:45	10°☾20'30		direct	-2874 Oct 25 j 10:28	17°☾46'25	
min. Earth dist.	-2882 Jul 24 j 00:26	9°☾17'50	41.71701 AU				
opposition	-2882 Jul 27 j 02:34	9°☾13'58	-14°-29'-5	conjunction	-2873 Jan 31 j 17:20	19°☾23'03	-15°-18'-37
direct	-2882 Oct 15 j 17:21	8°☾09'12		minimum elong	-2873 Jan 31 j 17:13	19°☾23'03	15°18'44
				max. Earth dist.	-2873 Feb 03 j 15:27	19°☾27'33	45.35505 AU
conjunction	-2881 Jan 22 j 02:36	9°☾49'20	-13°-55'-42	retrograde	-2873 May 15 j 07:32	21°☾04'06	
minimum elong	-2881 Jan 22 j 02:27	9°☾49'19	13°55'49	min. Earth dist.	-2873 Aug 04 j 11:12	20°☾02'41	43.52206 AU
max. Earth dist.	-2881 Jan 25 j 05:46	9°☾54'19	43.76275 AU	opposition	-2873 Aug 07 j 05:49	19°☾59'17	-16°-4'-53
retrograde	-2881 May 05 j 21:56	11°☾33'58		direct	-2873 Oct 26 j 23:39	18°☾56'10	
min. Earth dist.	-2881 Jul 25 j 12:37	10°☾31'29	41.93189 AU				
opposition	-2881 Jul 28 j 14:33	10°☾27'39	-14°-41'-37	conjunction	-2872 Feb 02 j 03:17	20°☾32'24	-15°-27'-2
direct	-2881 Oct 17 j 03:44	9°☾23'05		minimum elong	-2872 Feb 02 j 03:12	20°☾32'23	15°27'08
				max. Earth dist.	-2872 Feb 05 j 00:41	20°☾36'50	45.53756 AU
conjunction	-2880 Jan 23 j 14:06	11°☾02'45	-14°-7'-39	retrograde	-2872 May 15 j 16:54	22°☾13'02	
minimum elong	-2880 Jan 23 j 13:56	11°☾02'45	14°07'45	min. Earth dist.	-2872 Aug 04 j 20:39	21°☾11'46	43.70455 AU
max. Earth dist.	-2880 Jan 26 j 17:57	11°☾07'46	43.97466 AU	opposition	-2872 Aug 07 j 15:34	21°☾08'23	-16°-13'-16
retrograde	-2880 May 06 j 07:37	12°☾46'54		direct	-2872 Oct 27 j 10:29	20°☾05'24	
min. Earth dist.	-2880 Jul 26 j 01:34	11°☾44'35	42.14422 AU				
opposition	-2880 Jul 29 j 02:18	11°☾40'49	-14°-53'-39	conjunction	-2871 Feb 02 j 12:56	21°☾41'14	-15°-35'-1
direct	-2880 Oct 17 j 16:53	10°☾36'29		minimum elong	-2871 Feb 02 j 12:50	21°☾41'14	15°35'08
				max. Earth dist.	-2871 Feb 05 j 09:25	21°☾45'35	45.71749 AU
conjunction	-2879 Jan 24 j 01:19	12°☾15'41	-14°-19'-6	retrograde	-2871 May 17 j 04:23	23°☾21'29	
minimum elong	-2879 Jan 24 j 01:11	12°☾15'41	14°19'13	min. Earth dist.	-2871 Aug 06 j 07:27	22°☾20'19	43.88466 AU
max. Earth dist.	-2879 Jan 27 j 03:42	12°☾20'35	44.18386 AU	opposition	-2871 Aug 09 j 01:18	22°☾16'59	-16°-21'-12
retrograde	-2879 May 07 j 18:11	13°☾59'23		direct	-2871 Oct 28 j 18:34	21°☾14'10	
min. Earth dist.	-2879 Jul 27 j 12:51	12°☾57'17	42.35344 AU				
opposition	-2879 Jul 30 j 13:46	12°☾53'31	-15°-5'-11	conjunction	-2870 Feb 03 j 22:39	22°☾49'38	-15°-42'-35
direct	-2879 Oct 19 j 05:03	11°☾49'23		minimum elong	-2870 Feb 03 j 22:35	22°☾49'37	15°42'40
				max. Earth dist.	-2870 Feb 06 j 19:30	22°☾53'59	45.89511 AU
conjunction	-2878 Jan 25 j 12:32	13°☾28'10	-14°-30'-6	retrograde	-2870 May 18 j 14:30	24°☾29'28	
minimum elong	-2878 Jan 25 j 12:24	13°☾28'10	14°30'12	min. Earth dist.	-2870 Aug 07 j 17:24	23°☾28'27	44.06219 AU
max. Earth dist.	-2878 Jan 28 j 14:39	13°☾33'01	44.38949 AU	opposition	-2870 Aug 10 j 10:34	23°☾25'10	-16°-28'-41
retrograde	-2878 May 09 j 04:46	15°☾11'26		direct	-2870 Oct 30 j 03:12	22°☾22'30	
min. Earth dist.	-2878 Jul 29 j 02:02	14°☾09'26	42.55883 AU				
opposition	-2878 Aug 01 j 01:00	14°☾05'46	-15°-16'-15	conjunction	-2869 Feb 05 j 08:00	23°☾57'37	-15°-49'-43
direct	-2878 Oct 20 j 17:14	13°☾01'51		minimum elong	-2869 Feb 05 j 07:55	23°☾57'36	15°49'48
				max. Earth dist.	-2869 Feb 08 j 03:07	24°☾01'51	46.07028 AU
conjunction	-2877 Jan 26 j 23:37	14°☾40'11	-14°-40'-39	retrograde	-2869 May 20 j 01:10	25°☾37'04	
minimum elong	-2877 Jan 26 j 23:29	14°☾40'11	14°40'46	min. Earth dist.	-2869 Aug 09 j 02:40	24°☾36'13	44.23719 AU
max. Earth dist.	-2877 Jan 30 j 00:58	14°☾44'58	44.59115 AU	opposition	-2869 Aug 11 j 19:51	24°☾32'57	-16°-35'-44
retrograde	-2877 May 10 j 15:52	16°☾23'01		direct	-2869 Oct 31 j 10:48	23°☾30'27	
min. Earth dist.	-2877 Jul 30 j 13:18	15°☾21'11	42.75981 AU				
opposition	-2877 Aug 02 j 12:01	15°☾17'33	-15°-26'-52	conjunction	-2868 Feb 06 j 17:10	25°☾05'14	-15°-56'-26
direct	-2877 Oct 22 j 04:25	14°☾13'48		minimum elong	-2868 Feb 06 j 17:07	25°☾05'13	15°56'32
				max. Earth dist.	-2868 Feb 09 j 12:36	25°☾09'28	46.24265 AU
conjunction	-2876 Jan 28 j 10:14	15°☾51'43	-14°-50'-47	retrograde	-2868 May 20 j 08:31	26°☾44'20	
minimum elong	-2876 Jan 28 j 10:07	15°☾51'43	14°50'52	min. Earth dist.	-2868 Aug 09 j 13:41	25°☾43'33	44.40909 AU
max. Earth dist.	-2876 Jan 31 j 09:56	15°☾56'22	44.78828 AU	opposition	-2868 Aug 12 j 05:02	25°☾40'23	-16°-42'-22



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 3

Attention, astronomical year style is used: The year -2868 in astronomical counting style is the year 2869 BCE in historical counting style.

direct	-2868 Oct 31 j 21:04	24° $\overline{38}$ '03		min. Earth dist.	-2860 Aug 18 j 16:19	4° $\approx$ 28'43	45.62516 AU
				opposition	-2860 Aug 20 j 23:34	4° $\approx$ 26'00	-17°-22'-7
conjunction	-2867 Feb 07 j 02:25	26° $\overline{3}$ '12'30	-16°-2'-46	direct	-2860 Nov 09 j 20:47	3° $\approx$ 24'36	
minimum elong	-2867 Feb 07 j 02:21	26° $\overline{3}$ '12'29	16°02'51				
max. Earth dist.	-2867 Feb 09 j 20:40	26° $\overline{3}$ '16'39	46.41184 AU	conjunction	-2859 Feb 15 j 23:08	4° $\approx$ 56'30	-16°-40'-37
retrograde	-2867 May 21 j 15:17	27° $\overline{3}$ '51'16		minimum elong	-2859 Feb 15 j 23:09	4° $\approx$ 56'30	16°40'41
min. Earth dist.	-2867 Aug 10 j 22:28	26° $\overline{3}$ '50'39	44.57736 AU	max. Earth dist.	-2859 Feb 18 j 08:28	5° $\approx$ 00'00	47.60433 AU
opposition	-2867 Aug 13 j 13:47	26° $\overline{3}$ '47'29	-16°-48'-36	retrograde	-2859 May 30 j 12:21	6° $\approx$ 32'32	
direct	-2867 Nov 02 j 08:23	25° $\overline{3}$ '45'19		min. Earth dist.	-2859 Aug 20 j 00:19	5° $\approx$ 32'28	45.75949 AU
				opposition	-2859 Aug 22 j 07:02	5° $\approx$ 29'47	-17°-25'-27
conjunction	-2866 Feb 08 j 11:30	27° $\overline{3}$ '19'26	-16°-8'-43	direct	-2859 Nov 11 j 01:28	4° $\approx$ 28'30	
minimum elong	-2866 Feb 08 j 11:28	27° $\overline{3}$ '19'26	16°08'49				
max. Earth dist.	-2866 Feb 11 j 04:25	27° $\overline{3}$ '23'29	46.57697 AU	conjunction	-2858 Feb 17 j 07:09	6° $\approx$ 00'09	-16°-43'-46
retrograde	-2866 May 23 j 01:50	28° $\overline{3}$ '57'52		minimum elong	-2858 Feb 17 j 07:09	6° $\approx$ 00'08	16°43'51
min. Earth dist.	-2866 Aug 12 j 09:08	27° $\overline{3}$ '57'20	44.74134 AU	max. Earth dist.	-2858 Feb 19 j 16:42	6° $\approx$ 03'38	47.73664 AU
opposition	-2866 Aug 14 j 22:38	27° $\overline{3}$ '54'15	-16°-54'-28	retrograde	-2858 May 31 j 19:31	7° $\approx$ 35'53	
direct	-2866 Nov 03 j 16:52	26° $\overline{3}$ '52'14		min. Earth dist.	-2858 Aug 21 j 09:17	6° $\approx$ 35'52	45.89093 AU
				opposition	-2858 Aug 23 j 14:26	6° $\approx$ 33'15	-17°-28'-24
conjunction	-2865 Feb 09 j 20:31	28° $\overline{3}$ '26'02	-16°-14'-18	direct	-2858 Nov 12 j 09:06	5° $\approx$ 32'06	
minimum elong	-2865 Feb 09 j 20:28	28° $\overline{3}$ '26'02	16°14'24				
max. Earth dist.	-2865 Feb 12 j 13:01	28° $\overline{3}$ '30'03	46.73756 AU	conjunction	-2857 Feb 18 j 14:48	7° $\approx$ 03'29	-16°-46'-33
	-2865 May 05 j 04:57	0° $\approx$		minimum elong	-2857 Feb 18 j 14:50	7° $\approx$ 03'29	16°46'38
retrograde	-2865 May 24 j 11:12	0° $\approx$ 04'07		max. Earth dist.	-2857 Feb 20 j 23:03	7° $\approx$ 06'53	47.86627 AU
	-2865 Jun 12 j 20:07	30° $\overline{R}$ ' $\overline{3}$		retrograde	-2857 Jun 02 j 00:34	8° $\approx$ 38'57	
min. Earth dist.	-2865 Aug 13 j 18:48	29° $\overline{3}$ '03'40	44.90029 AU	min. Earth dist.	-2857 Aug 22 j 16:14	7° $\approx$ 39'05	46.01953 AU
opposition	-2865 Aug 16 j 07:14	29° $\overline{3}$ '00'40	-16°-59'-58	opposition	-2857 Aug 24 j 21:38	7° $\approx$ 36'28	-17°-31'00
direct	-2865 Nov 05 j 00:59	27° $\overline{3}$ '58'47		direct	-2857 Nov 13 j 18:06	6° $\approx$ 35'26	
conjunction	-2864 Feb 11 j 05:21	29° $\overline{3}$ '32'15	-16°-19'-33	conjunction	-2856 Feb 19 j 22:28	8° $\approx$ 06'35	-16°-48'-59
minimum elong	-2864 Feb 11 j 05:19	29° $\overline{3}$ '32'15	16°19'39	minimum elong	-2856 Feb 19 j 22:28	8° $\approx$ 06'35	16°49'04
max. Earth dist.	-2864 Feb 13 j 19:36	29° $\overline{3}$ '36'06	46.89312 AU	max. Earth dist.	-2856 Feb 22 j 05:49	8° $\approx$ 09'56	47.99291 AU
	-2864 Mar 01 j 03:41	0° $\approx$		retrograde	-2856 Jun 02 j 07:32	9° $\approx$ 41'49	
retrograde	-2864 May 24 j 21:29	1° $\approx$ 09'58		min. Earth dist.	-2856 Aug 23 j 01:13	8° $\approx$ 42'00	46.14504 AU
min. Earth dist.	-2864 Aug 14 j 04:08	0° $\approx$ 09'37	45.05422 AU	opposition	-2856 Aug 25 j 04:49	8° $\approx$ 39'28	-17°-33'-15
opposition	-2864 Aug 16 j 15:43	0° $\approx$ 06'39	-17°-5'-6	direct	-2856 Nov 14 j 02:46	7° $\approx$ 38'35	
	-2864 Aug 22 j 05:38	30° $\overline{R}$ ' $\overline{3}$					
direct	-2864 Nov 05 j 08:00	29° $\overline{3}$ '04'53		conjunction	-2855 Feb 20 j 06:11	9° $\approx$ 09'31	-16°-51'-6
	-2863 Jan 16 j 04:18	0° $\approx$		minimum elong	-2855 Feb 20 j 06:13	9° $\approx$ 09'31	16°51'11
				max. Earth dist.	-2855 Feb 22 j 13:11	9° $\approx$ 12'49	48.11633 AU
conjunction	-2863 Feb 11 j 14:07	0° $\approx$ 38'01	-16°-24'-28	retrograde	-2855 Jun 03 j 15:47	10° $\approx$ 44'29	
minimum elong	-2863 Feb 11 j 14:05	0° $\approx$ 38'01	16°24'33	min. Earth dist.	-2855 Aug 24 j 08:47	9° $\approx$ 44'48	46.26677 AU
max. Earth dist.	-2863 Feb 14 j 04:04	0° $\approx$ 41'51	47.04361 AU	opposition	-2855 Aug 26 j 11:45	9° $\approx$ 42'18	-17°-35'-9
retrograde	-2863 May 26 j 03:44	2° $\approx$ 15'23		direct	-2855 Nov 15 j 09:40	8° $\approx$ 41'32	
min. Earth dist.	-2863 Aug 15 j 14:29	1° $\approx$ 15'02	45.20305 AU				
opposition	-2863 Aug 18 j 00:04	1° $\approx$ 12'11	-17°-9'-54	conjunction	-2854 Feb 21 j 13:44	10° $\approx$ 12'16	-16°-52'-53
direct	-2863 Nov 06 j 18:14	0° $\approx$ 10'30		minimum elong	-2854 Feb 21 j 13:45	10° $\approx$ 12'16	16°52'57
				max. Earth dist.	-2854 Feb 23 j 18:35	10° $\approx$ 15'26	48.23569 AU
conjunction	-2862 Feb 12 j 22:43	1° $\approx$ 43'19	-16°-29'-2	retrograde	-2854 Jun 05 j 01:41	11° $\approx$ 47'00	
minimum elong	-2862 Feb 12 j 22:41	1° $\approx$ 43'19	16°29'08	min. Earth dist.	-2854 Aug 25 j 16:51	10° $\approx$ 47'23	46.38427 AU
max. Earth dist.	-2862 Feb 15 j 10:59	1° $\approx$ 47'02	47.18943 AU	opposition	-2854 Aug 27 j 18:35	10° $\approx$ 44'58	-17°-36'-44
retrograde	-2862 May 27 j 09:55	3° $\approx$ 20'20		direct	-2854 Nov 16 j 14:13	9° $\approx$ 44'19	
min. Earth dist.	-2862 Aug 16 j 22:31	2° $\approx$ 20'05	45.34741 AU				
opposition	-2862 Aug 19 j 07:56	2° $\approx$ 17'14	-17°-14'-20	conjunction	-2853 Feb 22 j 21:20	11° $\approx$ 14'50	-16°-54'-22
direct	-2862 Nov 08 j 03:52	1° $\approx$ 15'39		minimum elong	-2853 Feb 22 j 21:23	11° $\approx$ 14'50	16°54'27
				max. Earth dist.	-2853 Feb 25 j 01:54	11° $\approx$ 17'58	48.35047 AU
conjunction	-2861 Feb 14 j 07:00	2° $\approx$ 48'09	-16°-33'-15	retrograde	-2853 Jun 06 j 08:34	12° $\approx$ 49'19	
minimum elong	-2861 Feb 14 j 07:00	2° $\approx$ 48'09	16°33'20	min. Earth dist.	-2853 Aug 27 j 01:33	11° $\approx$ 49'44	46.49680 AU
max. Earth dist.	-2861 Feb 16 j 18:15	2° $\approx$ 51'47	47.33103 AU	opposition	-2853 Aug 29 j 01:26	11° $\approx$ 47'24	-17°-38'-2
retrograde	-2861 May 28 j 17:58	4° $\approx$ 24'49		direct	-2853 Nov 17 j 20:58	10° $\approx$ 46'52	
min. Earth dist.	-2861 Aug 18 j 08:13	3° $\approx$ 24'35	45.48798 AU				
opposition	-2861 Aug 20 j 15:54	3° $\approx$ 21'50	-17°-18'-25	conjunction	-2852 Feb 24 j 04:41	12° $\approx$ 17'10	-16°-55'-33
direct	-2861 Nov 09 j 12:39	2° $\approx$ 20'20		minimum elong	-2852 Feb 24 j 04:43	12° $\approx$ 17'10	16°55'37
				max. Earth dist.	-2852 Feb 26 j 07:07	12° $\approx$ 20'10	48.46031 AU
conjunction	-2860 Feb 15 j 15:08	3° $\approx$ 52'32	-16°-37'-7	retrograde	-2852 Jun 06 j 14:38	13° $\approx$ 51'23	
minimum elong	-2860 Feb 15 j 15:07	3° $\approx$ 52'31	16°37'12	min. Earth dist.	-2852 Aug 27 j 08:39	12° $\approx$ 51'54	46.60418 AU
max. Earth dist.	-2860 Feb 18 j 02:19	3° $\approx$ 56'08	47.46923 AU	opposition	-2852 Aug 29 j 08:07	12° $\approx$ 49'35	-17°-39'-1
retrograde	-2860 May 29 j 01:54	5° $\approx$ 28'52		direct	-2852 Nov 18 j 04:24	11° $\approx$ 49'08	



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 4

Attention, astronomical year style is used: The year -2851 in astronomical counting style is the year 2852 BCE in historical counting style.

conjunction	-2851 Feb 24 j 12:04	13° <del>19</del> '13	-16°-56'-28	direct	-2844 Nov 26 j 09:38	19° <del>55</del> '45	
minimum elong	-2851 Feb 24 j 12:07	13° <del>19</del> '13	16°56'33				
max. Earth dist.	-2851 Feb 26 j 13:16	13° <del>22</del> '09	48.56490 AU	conjunction	-2843 Mar 04 j 18:34	21° <del>24</del> '16	-16°-52'-54
retrograde	-2851 Jun 07 j 19:46	14° <del>53</del> '11		minimum elong	-2843 Mar 04 j 18:39	21° <del>24</del> '16	16°52'58
min. Earth dist.	-2851 Aug 28 j 17:34	13° <del>53</del> '40	46.70646 AU	max. Earth dist.	-2843 Mar 06 j 12:22	21° <del>26</del> '42	49.26695 AU
opposition	-2851 Aug 30 j 14:39	13° <del>55</del> '28	-17°-39'-43	retrograde	-2843 Jun 15 j 23:58	22° <del>56</del> '26	
direct	-2851 Nov 19 j 13:02	12° <del>55</del> '05		min. Earth dist.	-2843 Sep 06 j 00:58	21° <del>57</del> '14	47.39403 AU
				opposition	-2843 Sep 07 j 14:24	21° <del>55</del> '26	-17°-34'-7
conjunction	-2850 Feb 25 j 19:23	14° <del>20</del> '55	-16°-57'-5	direct	-2843 Nov 27 j 14:43	20° <del>55</del> '36	
minimum elong	-2850 Feb 25 j 19:26	14° <del>20</del> '56	16°57'09				
max. Earth dist.	-2850 Mar 26 j 02:03	15° <del>53</del> '48	48.66475 AU	conjunction	-2842 Mar 06 j 01:07	22° <del>23</del> '59	-16°-51'-7
	-2850 Mar 26 j 02:03	15° <del>53</del> '48		minimum elong	-2842 Mar 06 j 01:14	22° <del>24</del> '00	16°51'11
retrograde	-2850 Jun 09 j 01:12	15° <del>54</del> '38		max. Earth dist.	-2842 Mar 07 j 16:52	22° <del>26</del> '18	49.33999 AU
	-2850 Aug 25 j 20:46	15° <del>54</del> '38		retrograde	-2842 Jun 17 j 06:57	23° <del>55</del> '59	
min. Earth dist.	-2850 Aug 30 j 00:22	14° <del>55</del> '11	46.80407 AU	min. Earth dist.	-2842 Sep 07 j 07:02	22° <del>56</del> '52	47.46449 AU
opposition	-2850 Aug 31 j 20:58	14° <del>53</del> '01	-17°-40'-7	opposition	-2842 Sep 08 j 19:57	22° <del>55</del> '06	-17°-32'-3
direct	-2850 Nov 20 j 21:41	13° <del>52</del> '41		direct	-2842 Nov 28 j 19:21	21° <del>55</del> '21	
	-2849 Feb 11 j 06:09	15° <del>52</del> '41					
conjunction	-2849 Feb 27 j 02:13	15° <del>22</del> '17	-16°-57'-24	conjunction	-2841 Mar 07 j 07:33	23° <del>23</del> '37	-16°-49'-4
minimum elong	-2849 Feb 27 j 02:17	15° <del>22</del> '17	16°57'30	minimum elong	-2841 Mar 07 j 07:39	23° <del>23</del> '37	16°49'07
max. Earth dist.	-2849 Mar 01 j 00:35	15° <del>25</del> '02	48.76024 AU	max. Earth dist.	-2841 Mar 08 j 22:10	23° <del>25</del> '52	49.40830 AU
retrograde	-2849 Jun 10 j 11:01	16° <del>55</del> '45		retrograde	-2841 Jun 18 j 11:48	24° <del>55</del> '28	
min. Earth dist.	-2849 Aug 31 j 07:49	15° <del>56</del> '18	46.89776 AU	min. Earth dist.	-2841 Sep 08 j 15:06	23° <del>56</del> '20	47.52996 AU
opposition	-2849 Sep 02 j 03:17	15° <del>54</del> '11	-17°-40'-12	opposition	-2841 Sep 10 j 01:38	23° <del>54</del> '41	-17°-29'-43
	-2849 Oct 29 j 19:09	15° <del>54</del> '11		direct	-2841 Nov 30 j 02:07	22° <del>55</del> '00	
direct	-2849 Nov 22 j 01:38	14° <del>53</del> '54					
	-2849 Dec 15 j 05:19	15° <del>53</del> '54		conjunction	-2840 Mar 07 j 14:10	24° <del>23</del> '08	-16°-46'-45
conjunction	-2848 Feb 28 j 09:14	16° <del>23</del> '18	-16°-57'-26	minimum elong	-2840 Mar 07 j 14:18	24° <del>23</del> '09	16°46'50
minimum elong	-2848 Feb 28 j 09:19	16° <del>23</del> '18	16°57'30	max. Earth dist.	-2840 Mar 09 j 03:40	24° <del>25</del> '19	49.47161 AU
max. Earth dist.	-2848 Mar 01 j 07:43	16° <del>26</del> '02	48.85211 AU	retrograde	-2840 Jun 18 j 16:00	25° <del>54</del> '50	
retrograde	-2848 Jun 10 j 18:21	17° <del>56</del> '30		min. Earth dist.	-2840 Sep 08 j 21:07	24° <del>55</del> '45	47.59008 AU
min. Earth dist.	-2848 Aug 31 j 15:20	16° <del>57</del> '03	46.98795 AU	opposition	-2840 Sep 10 j 07:00	24° <del>54</del> '07	-17°-27'-8
opposition	-2848 Sep 02 j 09:23	16° <del>55</del> '01	-17°-39'-59	direct	-2840 Nov 30 j 10:03	23° <del>54</del> '31	
direct	-2848 Nov 22 j 07:10	15° <del>54</del> '47					
conjunction	-2847 Feb 28 j 16:04	17° <del>23</del> '58	-16°-57'-8	conjunction	-2839 Mar 08 j 20:38	25° <del>22</del> '31	-16°-44'-12
minimum elong	-2847 Feb 28 j 16:07	17° <del>23</del> '59	16°57'13	minimum elong	-2839 Mar 08 j 20:44	25° <del>22</del> '31	16°44'16
max. Earth dist.	-2847 Mar 02 j 12:53	17° <del>26</del> '37	48.94089 AU	max. Earth dist.	-2839 Mar 10 j 07:34	25° <del>24</del> '32	49.52953 AU
retrograde	-2847 Jun 11 j 23:48	18° <del>56</del> '56		retrograde	-2839 Jun 20 j 00:28	26° <del>54</del> '02	
min. Earth dist.	-2847 Sep 01 j 21:18	17° <del>57</del> '33	47.07515 AU	min. Earth dist.	-2839 Sep 10 j 04:20	25° <del>54</del> '57	47.64494 AU
opposition	-2847 Sep 03 j 15:21	17° <del>55</del> '31	-17°-39'-26	opposition	-2839 Sep 11 j 12:29	25° <del>53</del> '24	-17°-24'-18
direct	-2847 Nov 23 j 13:18	16° <del>55</del> '21		direct	-2839 Dec 01 j 14:15	24° <del>53</del> '50	
conjunction	-2846 Mar 01 j 22:47	18° <del>24</del> '21	-16°-56'-32	conjunction	-2838 Mar 10 j 03:05	26° <del>21</del> '43	-16°-41'-24
minimum elong	-2846 Mar 01 j 22:53	18° <del>24</del> '21	16°56'36	minimum elong	-2838 Mar 10 j 03:13	26° <del>21</del> '43	16°41'29
max. Earth dist.	-2846 Mar 03 j 18:51	18° <del>26</del> '57	49.02666 AU	max. Earth dist.	-2838 Mar 11 j 13:42	26° <del>23</del> '43	49.58230 AU
retrograde	-2846 Jun 13 j 03:32	19° <del>57</del> '05		retrograde	-2838 Jun 21 j 07:33	27° <del>53</del> '04	
min. Earth dist.	-2846 Sep 03 j 04:58	18° <del>57</del> '43	47.15946 AU	min. Earth dist.	-2838 Sep 11 j 11:13	26° <del>53</del> '57	47.69475 AU
opposition	-2846 Sep 04 j 21:16	18° <del>55</del> '46	-17°-38'-34	opposition	-2838 Sep 12 j 17:43	26° <del>52</del> '30	-17°-21'-13
direct	-2846 Nov 24 j 21:49	17° <del>55</del> '41		direct	-2838 Dec 02 j 18:33	25° <del>52</del> '58	
conjunction	-2845 Mar 03 j 05:29	19° <del>24</del> '30	-16°-55'-38	conjunction	-2837 Mar 11 j 09:18	27° <del>20</del> '42	-16°-38'-21
minimum elong	-2845 Mar 03 j 05:33	19° <del>24</del> '30	16°55'42	minimum elong	-2837 Mar 11 j 09:26	27° <del>20</del> '43	16°38'24
max. Earth dist.	-2845 Mar 05 j 01:08	19° <del>27</del> '03	49.10982 AU	max. Earth dist.	-2837 Mar 12 j 17:49	27° <del>22</del> '35	49.63052 AU
retrograde	-2845 Jun 14 j 08:29	20° <del>57</del> '01		retrograde	-2837 Jun 22 j 14:02	28° <del>51</del> '53	
min. Earth dist.	-2845 Sep 04 j 10:53	19° <del>57</del> '44	47.24092 AU	opposition	-2837 Sep 13 j 22:52	27° <del>51</del> '22	-17°-17'-52
opposition	-2845 Sep 06 j 03:02	19° <del>55</del> '48	-17°-37'-23	min. Earth dist.	-2837 Sep 12 j 16:43	27° <del>52</del> '49	47.74034 AU
direct	-2845 Nov 26 j 05:29	18° <del>55</del> '47		direct	-2837 Dec 03 j 22:34	26° <del>51</del> '52	
conjunction	-2844 Mar 03 j 11:53	20° <del>24</del> '27	-16°-54'-25	conjunction	-2836 Mar 11 j 15:24	28° <del>19</del> '29	-16°-35'-2
minimum elong	-2844 Mar 03 j 11:59	20° <del>24</del> '27	16°54'29	minimum elong	-2836 Mar 11 j 15:31	28° <del>19</del> '30	16°35'06
max. Earth dist.	-2844 Mar 05 j 05:46	20° <del>26</del> '54	49.19004 AU	max. Earth dist.	-2836 Mar 12 j 23:00	28° <del>21</del> '19	49.67465 AU
retrograde	-2844 Jun 14 j 16:58	21° <del>56</del> '48		retrograde	-2836 Jun 22 j 16:42	29° <del>50</del> '31	
min. Earth dist.	-2844 Sep 04 j 17:54	20° <del>57</del> '33	47.31935 AU	min. Earth dist.	-2836 Sep 12 j 23:57	28° <del>51</del> '24	47.78208 AU
opposition	-2844 Sep 06 j 08:52	20° <del>55</del> '41	-17°-35'-54	opposition	-2836 Sep 14 j 04:04	28° <del>50</del> '03	-17°-14'-14
				direct	-2836 Dec 04 j 06:45	27° <del>50</del> '35	
				conjunction	-2835 Mar 12 j 21:38	29° <del>18</del> '05	-16°-31'-26



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 5

Attention, astronomical year style is used: The year -2835 in astronomical counting style is the year 2836 BCE in historical counting style.

minimum elong	-2835 Mar 12 j 21:46	29° <del>18</del> '06	16°31'29	conjunction	-2827 Mar 20 j 21:35	7° <del>03</del> '42	-15°-53'-10
max. Earth dist.	-2835 Mar 14 j 04:34	29° <del>19</del> '53	49.71535 AU	minimum elong	-2827 Mar 20 j 21:46	7° <del>03</del> '43	15°53'13
	-2835 Apr 13 j 09:17	0° <del>00</del> '		max. Earth dist.	-2827 Mar 21 j 17:26	7° <del>04</del> '50	49.91269 AU
retrograde	-2835 Jun 23 j 19:48	0° <del>48</del> '58		retrograde	-2827 Jul 01 j 21:34	8° <del>33</del> '45	
	-2835 Sep 05 j 08:03	30° <del>00</del> '		opposition	-2827 Sep 22 j 23:37	7° <del>33</del> '48	-16°-29'-18
min. Earth dist.	-2835 Sep 14 j 05:00	29° <del>49</del> '54	47.82042 AU	min. Earth dist.	-2827 Sep 22 j 05:33	7° <del>34</del> '40	47.99416 AU
opposition	-2835 Sep 15 j 08:55	29° <del>48</del> '34	-17°-10'-19	direct	-2827 Dec 13 j 03:04	6° <del>34</del> '37	
direct	-2835 Dec 05 j 14:39	28° <del>49</del> '07					
	-2834 Mar 02 j 02:36	0° <del>00</del> '		conjunction	-2826 Mar 22 j 03:34	8° <del>01</del> '32	-15°-47'-18
				minimum elong	-2826 Mar 22 j 03:44	8° <del>01</del> '32	15°47'21
conjunction	-2834 Mar 14 j 03:38	0° <del>16</del> '32	-16°-27'-34	max. Earth dist.	-2826 Mar 22 j 22:06	8° <del>02</del> '35	49.91595 AU
minimum elong	-2834 Mar 14 j 03:46	0° <del>16</del> '33	16°27'38	retrograde	-2826 Jul 03 j 01:07	9° <del>31</del> '27	
max. Earth dist.	-2834 Mar 15 j 08:38	0° <del>18</del> '12	49.75279 AU	opposition	-2826 Sep 24 j 04:22	8° <del>31</del> '31	-16°-23'-5
retrograde	-2834 Jun 25 j 03:10	1° <del>47</del> '17		min. Earth dist.	-2826 Sep 23 j 12:33	8° <del>32</del> '16	47.99399 AU
min. Earth dist.	-2834 Sep 15 j 11:25	0° <del>48</del> '13	47.85575 AU	direct	-2826 Dec 14 j 09:29	7° <del>32</del> '20	
opposition	-2834 Sep 16 j 13:58	0° <del>46</del> '56	-17°-6'-7				
	-2834 Nov 02 j 16:42	30° <del>00</del> '		conjunction	-2825 Mar 23 j 09:19	8° <del>59</del> '10	-15°-41'-12
direct	-2834 Dec 06 j 18:43	29° <del>47</del> '33		minimum elong	-2825 Mar 23 j 09:30	8° <del>59</del> '10	15°41'16
	-2833 Jan 09 j 11:26	0° <del>00</del> '		max. Earth dist.	-2825 Mar 24 j 02:58	9° <del>00</del> '10	49.91455 AU
				retrograde	-2825 Jul 04 j 03:20	10° <del>28</del> '59	
conjunction	-2833 Mar 15 j 09:34	1° <del>14</del> '52	-16°-23'-26	opposition	-2825 Sep 25 j 08:53	9° <del>29</del> '03	-16°-16'-37
minimum elong	-2833 Mar 15 j 09:43	1° <del>14</del> '52	16°23'29	min. Earth dist.	-2825 Sep 24 j 17:27	9° <del>29</del> '47	47.98933 AU
max. Earth dist.	-2833 Mar 16 j 14:39	1° <del>16</del> '32	49.78727 AU	direct	-2825 Dec 15 j 17:05	8° <del>29</del> '51	
retrograde	-2833 Jun 26 j 09:43	2° <del>45</del> '30					
opposition	-2833 Sep 17 j 18:57	1° <del>45</del> '13	-17°-1'-38	conjunction	-2824 Mar 23 j 15:06	9° <del>56</del> '38	-15°-34'-52
min. Earth dist.	-2833 Sep 16 j 17:23	1° <del>46</del> '26	47.88791 AU	minimum elong	-2824 Mar 23 j 15:17	9° <del>56</del> '39	15°34'54
direct	-2833 Dec 07 j 23:18	0° <del>45</del> '52		max. Earth dist.	-2824 Mar 24 j 06:36	9° <del>57</del> '31	49.90894 AU
				retrograde	-2824 Jul 04 j 09:08	11° <del>26</del> '22	
conjunction	-2832 Mar 15 j 15:30	2° <del>13</del> '07	-16°-19'-1	opposition	-2824 Sep 25 j 13:23	10° <del>26</del> '27	-16°-9'-54
minimum elong	-2832 Mar 15 j 15:38	2° <del>13</del> '07	16°19'04	min. Earth dist.	-2824 Sep 24 j 23:37	10° <del>27</del> '06	47.98089 AU
max. Earth dist.	-2832 Mar 16 j 18:42	2° <del>14</del> '40	49.81874 AU	direct	-2824 Dec 15 j 21:52	9° <del>27</del> '13	
retrograde	-2832 Jun 26 j 17:25	3° <del>43</del> '38					
opposition	-2832 Sep 17 j 23:44	2° <del>43</del> '26	-16°-56'-52	conjunction	-2823 Mar 24 j 21:01	10° <del>53</del> '57	-15°-28'-16
min. Earth dist.	-2832 Sep 16 j 22:36	2° <del>44</del> '38	47.91694 AU	minimum elong	-2823 Mar 24 j 21:12	10° <del>53</del> '58	15°28'20
direct	-2832 Dec 08 j 01:44	1° <del>44</del> '08		max. Earth dist.	-2823 Mar 25 j 12:21	10° <del>54</del> '50	49.89977 AU
				retrograde	-2823 Jul 05 j 14:17	12° <del>23</del> '37	
conjunction	-2831 Mar 16 j 21:33	3° <del>11</del> '19	-16°-14'-20	opposition	-2823 Sep 26 j 17:52	11° <del>23</del> '42	-16°-2'-55
minimum elong	-2831 Mar 16 j 21:43	3° <del>11</del> '20	16°14'23	min. Earth dist.	-2823 Sep 26 j 05:07	11° <del>24</del> '19	47.96896 AU
max. Earth dist.	-2831 Mar 17 j 23:53	3° <del>12</del> '50	49.84670 AU	direct	-2823 Dec 17 j 03:08	10° <del>24</del> '28	
retrograde	-2831 Jun 27 j 22:36	4° <del>41</del> '44					
min. Earth dist.	-2831 Sep 18 j 05:43	3° <del>42</del> '42	47.94216 AU	conjunction	-2822 Mar 26 j 02:41	11° <del>51</del> '11	-15°-21'-25
opposition	-2831 Sep 19 j 04:41	3° <del>41</del> '37	-16°-51'-51	minimum elong	-2822 Mar 26 j 02:52	11° <del>51</del> '12	15°21'27
direct	-2831 Dec 09 j 06:51	2° <del>42</del> '22		max. Earth dist.	-2822 Mar 26 j 16:10	11° <del>51</del> '57	49.88747 AU
				retrograde	-2822 Jul 06 j 21:41	13° <del>20</del> '47	
conjunction	-2830 Mar 18 j 03:34	4° <del>09</del> '30	-16°-9'-23	opposition	-2822 Sep 27 j 22:15	12° <del>20</del> '54	-15°-55'-40
minimum elong	-2830 Mar 18 j 03:43	4° <del>09</del> '31	16°09'26	min. Earth dist.	-2822 Sep 27 j 09:51	12° <del>21</del> '29	47.95409 AU
max. Earth dist.	-2830 Mar 19 j 04:53	4° <del>10</del> '57	49.87072 AU	direct	-2822 Dec 18 j 05:14	11° <del>21</del> '39	
retrograde	-2830 Jun 29 j 01:03	5° <del>39</del> '50					
min. Earth dist.	-2830 Sep 19 j 10:50	4° <del>40</del> '50	47.96298 AU	conjunction	-2821 Mar 27 j 08:23	12° <del>48</del> '23	-15°-14'-18
opposition	-2830 Sep 20 j 09:21	4° <del>39</del> '46	-16°-46'-34	minimum elong	-2821 Mar 27 j 08:34	12° <del>48</del> '23	15°14'21
direct	-2830 Dec 10 j 14:40	3° <del>40</del> '34		max. Earth dist.	-2821 Mar 27 j 21:08	12° <del>49</del> '06	49.87225 AU
				retrograde	-2821 Jul 08 j 02:55	14° <del>17</del> '56	
conjunction	-2829 Mar 19 j 09:31	5° <del>07</del> '39	-16°-4'-12	opposition	-2821 Sep 29 j 02:46	13° <del>18</del> '05	-15°-48'-8
minimum elong	-2829 Mar 19 j 09:41	5° <del>07</del> '39	16°04'16	min. Earth dist.	-2821 Sep 28 j 16:13	13° <del>18</del> '35	47.93634 AU
max. Earth dist.	-2829 Mar 20 j 08:26	5° <del>08</del> '57	49.88998 AU	direct	-2821 Dec 19 j 09:43	12° <del>18</del> '51	
retrograde	-2829 Jun 30 j 07:11	6° <del>37</del> '53					
opposition	-2829 Sep 21 j 14:13	5° <del>37</del> '53	-16°-41'-2	conjunction	-2820 Mar 27 j 14:06	13° <del>45</del> '35	-15°-6'-55
min. Earth dist.	-2829 Sep 20 j 17:39	5° <del>38</del> '52	47.97889 AU	minimum elong	-2820 Mar 27 j 14:18	13° <del>45</del> '36	15°06'57
direct	-2829 Dec 11 j 19:59	4° <del>38</del> '42		max. Earth dist.	-2820 Mar 28 j 02:09	13° <del>46</del> '16	49.85432 AU
				retrograde	-2820 Jul 08 j 05:44	15° <del>15</del> '08	
conjunction	-2828 Mar 19 j 15:34	6° <del>05</del> '44	-15°-58'-48	opposition	-2820 Sep 29 j 07:09	14° <del>15</del> '18	-15°-40'-20
minimum elong	-2828 Mar 19 j 15:43	6° <del>05</del> '44	15°58'50	min. Earth dist.	-2820 Sep 28 j 20:36	14° <del>15</del> '48	47.91559 AU
max. Earth dist.	-2828 Mar 20 j 13:58	6° <del>07</del> '01	49.90407 AU	direct	-2820 Dec 19 j 16:26	13° <del>16</del> '05	
retrograde	-2828 Jun 30 j 13:54	7° <del>35</del> '53					
opposition	-2828 Sep 21 j 19:01	6° <del>35</del> '55	-16°-35'-17	conjunction	-2819 Mar 28 j 19:50	14° <del>42</del> '52	-14°-59'-17
min. Earth dist.	-2828 Sep 21 j 00:05	6° <del>36</del> '49	47.98922 AU	minimum elong	-2819 Mar 28 j 20:01	14° <del>42</del> '52	14°59'19
direct	-2828 Dec 12 j 00:21	5° <del>36</del> '45		max. Earth dist.	-2819 Mar 29 j 05:49	14° <del>43</del> '26	49.83316 AU



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 6

Attention, astronomical year style is used: The year -2819 in astronomical counting style is the year 2820 BCE in historical counting style.

retrograde	-2819 Jul 09 j 11:09	16° <del>✕</del> 12'24		direct	-2811 Dec 28 j 08:57	21° <del>✕</del> 53'36	
opposition	-2819 Sep 30 j 11:32	15° <del>✕</del> 12'38	-15°-32'-17				
min. Earth dist.	-2819 Sep 30 j 02:49	15° <del>✕</del> 13'03	47.89150 AU	conjunction	-2810 Apr 07 j 00:49	23° <del>✕</del> 20'46	-13°-39'-59
direct	-2819 Dec 20 j 21:30	14° <del>✕</del> 13'27		minimum elong	-2810 Apr 07 j 01:01	23° <del>✕</del> 20'47	13°40'01
				max. Earth dist.	-2810 Apr 06 j 22:56	23° <del>✕</del> 20'40	49.44080 AU
conjunction	-2818 Mar 30 j 01:45	15° <del>✕</del> 40'15	-14°-51'-24	retrograde	-2810 Jul 18 j 12:37	24° <del>✕</del> 50'18	
minimum elong	-2818 Mar 30 j 01:57	15° <del>✕</del> 40'16	14°51'26	opposition	-2810 Oct 09 j 03:26	23° <del>✕</del> 50'30	-14°-8'-58
max. Earth dist.	-2818 Mar 30 j 11:33	15° <del>✕</del> 40'49	49.80834 AU	min. Earth dist.	-2810 Oct 09 j 05:29	23° <del>✕</del> 50'24	47.46761 AU
retrograde	-2818 Jul 10 j 17:48	17° <del>✕</del> 09'49		direct	-2810 Dec 29 j 15:01	22° <del>✕</del> 51'00	
opposition	-2818 Oct 01 j 15:59	16° <del>✕</del> 10'05	-15°-23'-58				
min. Earth dist.	-2818 Oct 01 j 08:32	16° <del>✕</del> 10'26	47.86328 AU	conjunction	-2809 Apr 08 j 06:30	24° <del>✕</del> 18'14	-13°-29'-58
direct	-2818 Dec 22 j 01:18	15° <del>✕</del> 10'55		minimum elong	-2809 Apr 08 j 06:43	24° <del>✕</del> 18'15	13°29'59
				max. Earth dist.	-2809 Apr 08 j 02:47	24° <del>✕</del> 18'01	49.37762 AU
conjunction	-2817 Mar 31 j 07:24	16° <del>✕</del> 37'46	-14°-43'-16	retrograde	-2809 Jul 19 j 16:36	25° <del>✕</del> 47'49	
minimum elong	-2817 Mar 31 j 07:35	16° <del>✕</del> 37'47	14°43'18	opposition	-2809 Oct 10 j 08:01	24° <del>✕</del> 47'59	-13°-58'-26
max. Earth dist.	-2817 Mar 31 j 14:52	16° <del>✕</del> 38'11	49.77921 AU	min. Earth dist.	-2809 Oct 10 j 11:40	24° <del>✕</del> 47'48	47.40166 AU
retrograde	-2817 Jul 12 j 02:43	18° <del>✕</del> 07'20		direct	-2809 Dec 30 j 21:03	23° <del>✕</del> 48'27	
opposition	-2817 Oct 02 j 20:28	17° <del>✕</del> 07'38	-15°-15'-25				
min. Earth dist.	-2817 Oct 02 j 13:50	17° <del>✕</del> 07'57	47.83047 AU	conjunction	-2808 Apr 08 j 12:34	25° <del>✕</del> 15'46	-13°-19'-40
direct	-2817 Dec 23 j 02:26	16° <del>✕</del> 08'28		minimum elong	-2808 Apr 08 j 12:46	25° <del>✕</del> 15'47	13°19'42
				max. Earth dist.	-2808 Apr 08 j 08:49	25° <del>✕</del> 15'33	49.31168 AU
conjunction	-2816 Mar 31 j 13:24	17° <del>✕</del> 35'23	-14°-34'-55	retrograde	-2808 Jul 19 j 21:11	26° <del>✕</del> 45'24	
minimum elong	-2816 Mar 31 j 13:36	17° <del>✕</del> 35'23	14°34'57	opposition	-2808 Oct 10 j 12:25	25° <del>✕</del> 45'34	-13°-47'-39
max. Earth dist.	-2816 Mar 31 j 19:31	17° <del>✕</del> 35'43	49.74502 AU	min. Earth dist.	-2808 Oct 10 j 16:58	25° <del>✕</del> 45'21	47.33271 AU
retrograde	-2816 Jul 12 j 07:13	19° <del>✕</del> 04'56		direct	-2808 Dec 31 j 02:56	24° <del>✕</del> 46'00	
opposition	-2816 Oct 03 j 00:58	18° <del>✕</del> 05'16	-15°-6'-39				
min. Earth dist.	-2816 Oct 02 j 20:46	18° <del>✕</del> 05'28	47.79238 AU	conjunction	-2807 Apr 09 j 18:36	26° <del>✕</del> 13'26	-13°-9'-8
direct	-2816 Dec 23 j 07:46	17° <del>✕</del> 06'04		minimum elong	-2807 Apr 09 j 18:50	26° <del>✕</del> 13'26	13°09'10
				max. Earth dist.	-2807 Apr 09 j 12:46	26° <del>✕</del> 13'06	49.24273 AU
conjunction	-2815 Apr 01 j 19:27	18° <del>✕</del> 33'02	-14°-26'-21	retrograde	-2807 Jul 21 j 05:55	27° <del>✕</del> 43'08	
minimum elong	-2815 Apr 01 j 19:39	18° <del>✕</del> 33'02	14°26'22	opposition	-2807 Oct 11 j 16:57	26° <del>✕</del> 43'18	-13°-36'-36
max. Earth dist.	-2815 Apr 02 j 00:16	18° <del>✕</del> 33'18	49.70566 AU	min. Earth dist.	-2807 Oct 11 j 22:10	26° <del>✕</del> 43'03	47.26056 AU
retrograde	-2815 Jul 13 j 09:29	20° <del>✕</del> 02'35		direct	-2806 Jan 01 j 04:33	25° <del>✕</del> 43'42	
opposition	-2815 Oct 04 j 05:24	19° <del>✕</del> 02'54	-14°-57'-38				
min. Earth dist.	-2815 Oct 04 j 01:46	19° <del>✕</del> 03'04	47.74897 AU	conjunction	-2806 Apr 11 j 00:41	27° <del>✕</del> 11'16	-12°-58'-21
direct	-2815 Dec 24 j 15:39	18° <del>✕</del> 03'41		minimum elong	-2806 Apr 11 j 00:53	27° <del>✕</del> 11'16	12°58'22
				max. Earth dist.	-2806 Apr 10 j 17:51	27° <del>✕</del> 10'52	49.17009 AU
conjunction	-2814 Apr 03 j 01:15	19° <del>✕</del> 30'40	-14°-17'-33	retrograde	-2806 Jul 22 j 12:14	28° <del>✕</del> 41'03	
minimum elong	-2814 Apr 03 j 01:28	19° <del>✕</del> 30'41	14°17'35	opposition	-2806 Oct 12 j 21:35	27° <del>✕</del> 41'13	-13°-25'-17
max. Earth dist.	-2814 Apr 03 j 03:34	19° <del>✕</del> 30'48	49.66101 AU	min. Earth dist.	-2806 Oct 13 j 04:59	27° <del>✕</del> 40'52	47.18440 AU
retrograde	-2814 Jul 14 j 14:10	21° <del>✕</del> 00'13		direct	-2805 Jan 02 j 08:25	26° <del>✕</del> 41'35	
opposition	-2814 Oct 05 j 09:54	20° <del>✕</del> 00'31	-14°-48'-24				
min. Earth dist.	-2814 Oct 05 j 08:16	20° <del>✕</del> 00'36	47.70060 AU	conjunction	-2805 Apr 12 j 06:56	28° <del>✕</del> 09'17	-12°-47'-19
direct	-2814 Dec 25 j 21:30	19° <del>✕</del> 01'15		minimum elong	-2805 Apr 12 j 07:09	28° <del>✕</del> 09'18	12°47'20
				max. Earth dist.	-2805 Apr 11 j 23:00	28° <del>✕</del> 08'50	49.09328 AU
conjunction	-2813 Apr 04 j 07:13	20° <del>✕</del> 28'16	-14°-8'-31	retrograde	-2805 Jul 23 j 16:23	29° <del>✕</del> 39'10	
minimum elong	-2813 Apr 04 j 07:25	20° <del>✕</del> 28'17	14°08'33	opposition	-2805 Oct 14 j 02:08	28° <del>✕</del> 39'19	-13°-13'-44
max. Earth dist.	-2813 Apr 04 j 09:08	20° <del>✕</del> 28'23	49.61169 AU	min. Earth dist.	-2805 Oct 14 j 10:03	28° <del>✕</del> 38'56	47.10365 AU
retrograde	-2813 Jul 15 j 18:40	21° <del>✕</del> 57'49		direct	-2804 Jan 03 j 15:10	27° <del>✕</del> 39'39	
opposition	-2813 Oct 06 j 14:16	20° <del>✕</del> 58'05	-14°-38'-56				
min. Earth dist.	-2813 Oct 06 j 13:45	20° <del>✕</del> 58'07	47.64771 AU	conjunction	-2804 Apr 12 j 13:12	29° <del>✕</del> 07'30	-12°-36'-3
direct	-2813 Dec 27 j 03:15	19° <del>✕</del> 58'46		minimum elong	-2804 Apr 12 j 13:24	29° <del>✕</del> 07'31	12°36'03
				max. Earth dist.	-2804 Apr 12 j 02:37	29° <del>✕</del> 06'54	49.01145 AU
conjunction	-2812 Apr 04 j 12:59	21° <del>✕</del> 25'49	-13°-59'-15		-2804 May 23 j 08:47	0° <del>☾</del>	
minimum elong	-2812 Apr 04 j 13:11	21° <del>✕</del> 25'49	13°59'18	retrograde	-2804 Jul 23 j 21:31	0° <del>☾</del> 37'29	
max. Earth dist.	-2812 Apr 04 j 12:49	21° <del>✕</del> 25'48	49.55826 AU		-2804 Sep 24 j 08:14	30° <del>☾</del>	
retrograde	-2812 Jul 16 j 02:52	22° <del>✕</del> 55'20		opposition	-2804 Oct 14 j 06:57	29° <del>✕</del> 37'37	-13°-1'-56
opposition	-2812 Oct 06 j 18:40	21° <del>✕</del> 55'35	-14°-29'-12	min. Earth dist.	-2804 Oct 14 j 17:05	29° <del>✕</del> 37'08	47.01769 AU
min. Earth dist.	-2812 Oct 06 j 18:54	21° <del>✕</del> 55'35	47.59100 AU	direct	-2803 Jan 03 j 21:07	28° <del>✕</del> 37'54	
direct	-2812 Dec 27 j 05:11	20° <del>✕</del> 56'12			-2803 Apr 09 j 12:39	0° <del>☾</del>	
conjunction	-2811 Apr 05 j 18:56	22° <del>✕</del> 23'18	-13°-49'-45	conjunction	-2803 Apr 13 j 19:45	0° <del>☾</del> 05'53	-12°-24'-34
minimum elong	-2811 Apr 05 j 19:08	22° <del>✕</del> 23'19	13°49'46	minimum elong	-2803 Apr 13 j 19:58	0° <del>☾</del> 05'54	12°24'35
max. Earth dist.	-2811 Apr 05 j 17:49	22° <del>✕</del> 23'14	49.50106 AU	max. Earth dist.	-2803 Apr 13 j 08:28	0° <del>☾</del> 05'15	48.92426 AU
retrograde	-2811 Jul 17 j 09:17	23° <del>✕</del> 52'50		retrograde	-2803 Jul 25 j 02:09	1° <del>☾</del> 35'58	
opposition	-2811 Oct 07 j 23:03	22° <del>✕</del> 53'03	-14°-19'-13	opposition	-2803 Oct 15 j 11:39	0° <del>☾</del> 36'04	-12°-49'-55
min. Earth dist.	-2811 Oct 08 j 01:10	22° <del>✕</del> 52'57	47.53080 AU	min. Earth dist.	-2803 Oct 15 j 23:05	0° <del>☾</del> 35'31	46.92620 AU



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 7

Attention, astronomical year style is used: The year -2803 in astronomical counting style is the year 2804 BCE in historical counting style.

	-2803 Nov 18 j 01:07	30°R <del>8</del>		max. Earth dist.	-2794 Apr 22 j 07:01	8°V55'53	47.95220 AU
direct	-2802 Jan 05 j 03:20	29°R <del>3</del> 6'16					
	-2802 Feb 21 j 15:30	0°V		conjunction	-2794 Apr 23 j 07:04	8°V57'16	-10°-30'-8
				minimum elong	-2794 Apr 23 j 07:17	8°V57'17	10°30'09
conjunction	-2802 Apr 15 j 02:08	1°V04'24	-12°-12'-51	retrograde	-2794 Aug 03 j 10:49	10°V28'34	
minimum elong	-2802 Apr 15 j 02:20	1°V04'25	12°12'51	opposition	-2794 Oct 24 j 08:34	9°V28'08	-10°-50'-7
max. Earth dist.	-2802 Apr 14 j 12:22	1°V03'37	48.83180 AU	min. Earth dist.	-2794 Oct 25 j 06:33	9°V27'03	45.92390 AU
retrograde	-2802 Jul 26 j 10:30	2°V34'35		direct	-2793 Jan 14 j 01:01	8°V27'31	
opposition	-2802 Oct 16 j 16:28	1°V34'37	-12°-37'-40				
min. Earth dist.	-2802 Oct 17 j 04:59	1°V34'01	46.82968 AU	conjunction	-2793 Apr 24 j 14:06	9°V57'25	-10°-16'-8
direct	-2801 Jan 06 j 05:58	0°V34'45		minimum elong	-2793 Apr 24 j 14:18	9°V57'25	10°16'07
				max. Earth dist.	-2793 Apr 23 j 13:44	9°V56'00	47.82720 AU
conjunction	-2801 Apr 16 j 08:29	2°V03'01	-12°00'-54	retrograde	-2793 Aug 04 j 15:15	11°V28'55	
minimum elong	-2801 Apr 16 j 08:41	2°V03'02	12°00'55	opposition	-2793 Oct 25 j 13:58	10°V28'25	-10°-35'-27
max. Earth dist.	-2801 Apr 15 j 17:29	2°V02'10	48.73431 AU	min. Earth dist.	-2793 Oct 26 j 12:58	10°V27'17	45.79503 AU
retrograde	-2801 Jul 27 j 17:37	3°V33'18		direct	-2792 Jan 15 j 08:48	9°V27'42	
opposition	-2801 Oct 17 j 21:23	2°V33'16	-12°-25'-9				
min. Earth dist.	-2801 Oct 18 j 12:00	2°V32'34	46.72837 AU	conjunction	-2792 Apr 24 j 21:21	10°V57'50	-10°-1'-52
direct	-2800 Jan 07 j 10:13	1°V33'18		minimum elong	-2792 Apr 24 j 21:34	10°V57'51	10°01'52
				max. Earth dist.	-2792 Apr 23 j 18:27	10°V56'16	47.69754 AU
conjunction	-2800 Apr 16 j 15:01	3°V01'44	-11°-48'-42	retrograde	-2792 Aug 04 j 23:25	12°V29'32	
minimum elong	-2800 Apr 16 j 15:14	3°V01'45	11°48'42	opposition	-2792 Oct 25 j 19:24	11°V28'58	-10°-20'-32
max. Earth dist.	-2800 Apr 15 j 22:57	3°V00'49	48.63251 AU	min. Earth dist.	-2792 Oct 26 j 19:47	11°V27'46	45.66137 AU
retrograde	-2800 Jul 27 j 22:43	4°V32'06		direct	-2791 Jan 15 j 13:01	10°V28'08	
opposition	-2800 Oct 18 j 02:04	3°V32'01	-12°-12'-24	max. Earth dist.	-2791 Apr 25 j 00:34	11°V56'52	47.56274 AU
min. Earth dist.	-2800 Oct 18 j 16:57	3°V31'18	46.62297 AU				
direct	-2799 Jan 07 j 16:18	2°V31'57		conjunction	-2791 Apr 26 j 04:52	11°V58'31	-9°-47'-22
				minimum elong	-2791 Apr 26 j 05:04	11°V58'32	9°47'22
conjunction	-2799 Apr 17 j 21:33	4°V00'33	-11°-36'-16	retrograde	-2791 Aug 06 j 07:53	13°V30'25	
minimum elong	-2799 Apr 17 j 21:45	4°V00'34	11°36'17	opposition	-2791 Oct 27 j 01:08	12°V29'45	-10°-5'-22
max. Earth dist.	-2799 Apr 17 j 03:20	3°V59'30	48.52674 AU	min. Earth dist.	-2791 Oct 28 j 03:36	12°V28'27	45.52249 AU
retrograde	-2799 Jul 29 j 03:09	5°V31'02		direct	-2790 Jan 16 j 17:26	11°V28'47	
opposition	-2799 Oct 19 j 07:04	4°V30'53	-11°-59'-22	max. Earth dist.	-2790 Apr 26 j 06:35	12°V57'41	47.42298 AU
min. Earth dist.	-2799 Oct 19 j 23:52	4°V30'04	46.51400 AU				
direct	-2798 Jan 08 j 22:50	3°V30'43		conjunction	-2790 Apr 27 j 12:14	12°V59'25	-9°-32'-37
max. Earth dist.	-2798 Apr 18 j 09:49	4°V58'26	48.41764 AU	minimum elong	-2790 Apr 27 j 12:26	12°V59'26	9°32'38
				retrograde	-2790 Aug 07 j 16:15	14°V31'30	
conjunction	-2798 Apr 19 j 04:05	4°V59'29	-11°-23'-34	opposition	-2790 Oct 28 j 06:47	13°V30'43	-9°-49'-56
minimum elong	-2798 Apr 19 j 04:18	4°V59'30	11°23'34	min. Earth dist.	-2790 Oct 29 j 09:40	13°V29'24	45.37875 AU
retrograde	-2798 Jul 30 j 06:52	6°V30'06		direct	-2789 Jan 17 j 22:47	12°V29'36	
opposition	-2798 Oct 20 j 12:01	5°V29'53	-11°-46'-4	max. Earth dist.	-2789 Apr 27 j 11:48	13°V58'37	47.27845 AU
min. Earth dist.	-2798 Oct 21 j 05:25	5°V29'03	46.40182 AU				
direct	-2797 Jan 10 j 06:13	4°V29'38		conjunction	-2789 Apr 28 j 19:44	14°V00'30	-9°-17'-38
				minimum elong	-2789 Apr 28 j 19:56	14°V00'30	9°17'37
conjunction	-2797 Apr 20 j 10:36	5°V58'35	-11°-10'-37	retrograde	-2789 Aug 08 j 22:11	15°V32'47	
minimum elong	-2797 Apr 20 j 10:48	5°V58'35	11°10'38	opposition	-2789 Oct 29 j 12:33	14°V31'52	-9°-34'-13
max. Earth dist.	-2797 Apr 19 j 14:18	5°V57'24	48.30567 AU	min. Earth dist.	-2789 Oct 30 j 17:40	14°V30'26	45.23062 AU
retrograde	-2797 Jul 31 j 15:55	7°V29'21		direct	-2788 Jan 19 j 05:41	13°V30'35	
opposition	-2797 Oct 21 j 16:59	6°V29'04	-11°-32'-30	max. Earth dist.	-2788 Apr 27 j 19:09	14°V59'50	47.12980 AU
min. Earth dist.	-2797 Oct 22 j 11:01	6°V28'12	46.28696 AU				
direct	-2796 Jan 11 j 08:14	5°V28'43		conjunction	-2788 Apr 29 j 03:28	15°V01'44	-9°-2'-22
				minimum elong	-2788 Apr 29 j 03:39	15°V01'45	9°02'23
conjunction	-2796 Apr 20 j 17:20	6°V57'53	-10°-57'-23	retrograde	-2788 Aug 09 j 01:47	16°V34'14	
minimum elong	-2796 Apr 20 j 17:33	6°V57'53	10°57'23	opposition	-2788 Oct 29 j 18:23	15°V33'11	-9°-18'-15
max. Earth dist.	-2796 Apr 19 j 20:20	6°V56'40	48.19088 AU	min. Earth dist.	-2788 Oct 31 j 00:10	15°V31'43	45.07853 AU
retrograde	-2796 Jul 31 j 23:52	8°V28'49		direct	-2787 Jan 19 j 14:58	14°V31'45	
opposition	-2796 Oct 21 j 22:10	7°V28'29	-11°-18'-39	max. Earth dist.	-2787 Apr 29 j 00:34	16°V01'09	46.97750 AU
min. Earth dist.	-2796 Oct 22 j 17:58	7°V27'31	46.16918 AU				
direct	-2795 Jan 11 j 11:23	6°V28'03		conjunction	-2787 Apr 30 j 11:07	16°V03'11	-8°-46'-51
max. Earth dist.	-2795 Apr 21 j 02:17	7°V56'10	48.07325 AU	minimum elong	-2787 Apr 30 j 11:18	16°V03'11	8°46'50
				retrograde	-2787 Aug 10 j 09:49	17°V35'54	
conjunction	-2795 Apr 22 j 00:11	7°V57'26	-10°-43'-53	opposition	-2787 Oct 31 j 00:15	16°V34'44	-9°-1'-59
minimum elong	-2795 Apr 22 j 00:23	7°V57'27	10°43'54	min. Earth dist.	-2787 Nov 01 j 07:00	16°V33'12	44.92323 AU
retrograde	-2795 Aug 02 j 05:31	9°V28'32		direct	-2786 Jan 20 j 19:54	15°V33'07	
opposition	-2795 Oct 23 j 03:13	8°V28'09	-11°-4'-31	max. Earth dist.	-2786 Apr 30 j 07:51	17°V02'46	46.82209 AU
min. Earth dist.	-2795 Oct 23 j 23:12	8°V27'11	46.04833 AU				
direct	-2794 Jan 12 j 18:11	7°V27'38		conjunction	-2786 May 01 j 18:59	17°V04'51	-8°-31'-4



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 8

Attention, astronomical year style is used: The year -2786 in astronomical counting style is the year 2787 BCE in historical counting style.

minimum elong	-2786 May 01 j 19:09	17° $\Upsilon$ 04'52	8°31'03	min. Earth dist.	-2778 Nov 11 j 05:34	26° $\Upsilon$ 04'30	43.39141 AU
retrograde	-2786 Aug 11 j 18:01	18° $\Upsilon$ 37'50		direct	-2777 Jan 30 j 09:06	25° $\Upsilon$ 03'34	
opposition	-2786 Nov 01 j 06:25	17° $\Upsilon$ 36'31	-8°-45'-26	max. Earth dist.	-2777 May 10 j 01:00	26° $\Upsilon$ 35'56	45.28646 AU
min. Earth dist.	-2786 Nov 02 j 14:42	17° $\Upsilon$ 34'55	44.76508 AU				
direct	-2785 Jan 22 j 00:35	16° $\Upsilon$ 34'45		conjunction	-2777 May 12 j 00:43	26° $\Upsilon$ 38'51	-5°-56'-29
max. Earth dist.	-2785 May 01 j 14:47	18° $\Upsilon$ 04'40	46.66424 AU	minimum elong	-2777 May 12 j 00:51	26° $\Upsilon$ 38'52	5°56'28
				retrograde	-2777 Aug 21 j 19:54	28° $\Upsilon$ 14'51	
conjunction	-2785 May 03 j 02:45	18° $\Upsilon$ 06'48	-8°-14'-59	opposition	-2777 Nov 10 j 20:11	27° $\Upsilon$ 12'27	-6°-3'-18
minimum elong	-2785 May 03 j 02:57	18° $\Upsilon$ 06'49	8°14'58	min. Earth dist.	-2777 Nov 12 j 14:40	27° $\Upsilon$ 10'17	43.20130 AU
retrograde	-2785 Aug 13 j 02:16	19° $\Upsilon$ 40'03		direct	-2776 Jan 31 j 17:28	26° $\Upsilon$ 09'13	
opposition	-2785 Nov 02 j 12:35	18° $\Upsilon$ 38'38	-8°-28'-36	max. Earth dist.	-2776 May 10 j 10:06	27° $\Upsilon$ 41'58	45.09550 AU
min. Earth dist.	-2785 Nov 03 j 20:49	18° $\Upsilon$ 37'02	44.60457 AU				
direct	-2784 Jan 23 j 06:48	17° $\Upsilon$ 36'43		conjunction	-2776 May 12 j 10:27	27° $\Upsilon$ 44'56	-5°-37'-56
max. Earth dist.	-2784 May 01 j 21:00	19° $\Upsilon$ 06'52	46.50391 AU	minimum elong	-2776 May 12 j 10:35	27° $\Upsilon$ 44'57	5°37'54
				retrograde	-2776 Aug 22 j 04:06	29° $\Upsilon$ 21'18	
conjunction	-2784 May 03 j 10:51	19° $\Upsilon$ 09'07	-7°-58'-38	opposition	-2776 Nov 11 j 03:52	28° $\Upsilon$ 18'43	-5°-43'-51
minimum elong	-2784 May 03 j 11:01	19° $\Upsilon$ 09'07	7°58'38	min. Earth dist.	-2776 Nov 12 j 23:54	28° $\Upsilon$ 16'28	43.00740 AU
retrograde	-2784 Aug 13 j 09:52	20° $\Upsilon$ 42'39		direct	-2775 Feb 01 j 01:03	27° $\Upsilon$ 15'15	
opposition	-2784 Nov 02 j 18:57	19° $\Upsilon$ 41'07	-8°-11'-27	max. Earth dist.	-2775 May 11 j 18:28	28° $\Upsilon$ 48'21	44.90118 AU
min. Earth dist.	-2784 Nov 04 j 04:59	19° $\Upsilon$ 39'26	44.44172 AU				
direct	-2783 Jan 23 j 14:02	18° $\Upsilon$ 39'04		conjunction	-2775 May 13 j 20:14	28° $\Upsilon$ 51'25	-5°-19'-7
max. Earth dist.	-2783 May 03 j 05:25	20° $\Upsilon$ 09'36	46.34123 AU	minimum elong	-2775 May 13 j 20:22	28° $\Upsilon$ 51'25	5°19'06
					-2775 Jul 04 j 05:39	0° $\mathcal{B}$	
conjunction	-2783 May 04 j 19:13	20° $\Upsilon$ 11'51	-7°-42'00	retrograde	-2775 Aug 23 j 15:17	0° $\mathcal{B}$ 28'10	
minimum elong	-2783 May 04 j 19:24	20° $\Upsilon$ 11'52	7°42'00		-2775 Oct 13 j 13:14	30° $\mathcal{R}\Upsilon$	
retrograde	-2783 Aug 14 j 15:22	21° $\Upsilon$ 45'42		opposition	-2775 Nov 12 j 11:44	29° $\Upsilon$ 25'23	-5°-24'-5
opposition	-2783 Nov 04 j 01:28	20° $\Upsilon$ 44'05	-7°-54'-1	min. Earth dist.	-2775 Nov 14 j 08:03	29° $\Upsilon$ 23'08	42.81049 AU
min. Earth dist.	-2783 Nov 05 j 11:54	20° $\Upsilon$ 42'22	44.27625 AU	direct	-2774 Feb 02 j 07:17	28° $\Upsilon$ 21'41	
direct	-2782 Jan 24 j 23:05	19° $\Upsilon$ 41'54		max. Earth dist.	-2774 May 13 j 02:42	29° $\Upsilon$ 55'09	44.70387 AU
max. Earth dist.	-2782 May 04 j 11:31	21° $\Upsilon$ 12'41	46.17572 AU				
				conjunction	-2774 May 15 j 06:01	29° $\Upsilon$ 58'19	-5°00'-1
conjunction	-2782 May 06 j 03:27	21° $\Upsilon$ 15'04	-7°-25'-6	minimum elong	-2774 May 15 j 06:09	29° $\Upsilon$ 58'19	4°59'59
minimum elong	-2782 May 06 j 03:36	21° $\Upsilon$ 15'05	7°25'05		-2774 May 16 j 09:19	0° $\mathcal{B}$	
retrograde	-2782 Aug 16 j 00:12	22° $\Upsilon$ 49'17		retrograde	-2774 Aug 25 j 02:34	1° $\mathcal{B}$ 35'29	
opposition	-2782 Nov 05 j 08:08	21° $\Upsilon$ 47'34	-7°-36'-16	opposition	-2774 Nov 13 j 19:56	0° $\mathcal{B}$ 32'30	-5°-4'00
min. Earth dist.	-2782 Nov 06 j 19:49	21° $\Upsilon$ 45'47	44.10780 AU	min. Earth dist.	-2774 Nov 15 j 18:03	0° $\mathcal{B}$ 30'08	42.61100 AU
direct	-2781 Jan 26 j 04:34	20° $\Upsilon$ 45'15			-2774 Dec 11 j 12:25	30° $\mathcal{R}\Upsilon$	
max. Earth dist.	-2781 May 05 j 19:25	22° $\Upsilon$ 16'23	46.00670 AU	direct	-2773 Feb 03 j 14:55	29° $\Upsilon$ 28'34	
					-2773 Mar 29 j 06:13	0° $\mathcal{B}$	
conjunction	-2781 May 07 j 12:09	22° $\Upsilon$ 18'50	-7°-7'-55	max. Earth dist.	-2773 May 14 j 12:52	1° $\mathcal{B}$ 02'30	44.50428 AU
minimum elong	-2781 May 07 j 12:20	22° $\Upsilon$ 18'50	7°07'54				
retrograde	-2781 Aug 17 j 09:25	23° $\Upsilon$ 53'24		conjunction	-2773 May 16 j 16:13	1° $\mathcal{B}$ 05'41	-4°-40'-38
opposition	-2781 Nov 06 j 14:57	22° $\Upsilon$ 51'35	-7°-18'-15	minimum elong	-2773 May 16 j 16:20	1° $\mathcal{B}$ 05'41	4°40'37
min. Earth dist.	-2781 Nov 08 j 04:24	22° $\Upsilon$ 49'42	43.93548 AU	retrograde	-2773 Aug 26 j 11:34	2° $\mathcal{B}$ 43'15	
direct	-2780 Jan 27 j 10:01	21° $\Upsilon$ 49'07		opposition	-2773 Nov 15 j 04:09	1° $\mathcal{B}$ 40'05	-4°-43'-38
max. Earth dist.	-2780 May 06 j 02:46	23° $\Upsilon$ 20'34	45.83363 AU	min. Earth dist.	-2773 Nov 17 j 02:17	1° $\mathcal{B}$ 37'42	42.40935 AU
				direct	-2772 Feb 05 j 01:29	0° $\mathcal{B}$ 35'55	
conjunction	-2780 May 07 j 21:03	23° $\Upsilon$ 23'07	-6°-50'-27	max. Earth dist.	-2772 May 14 j 21:06	2° $\mathcal{B}$ 10'13	44.30262 AU
minimum elong	-2780 May 07 j 21:12	23° $\Upsilon$ 23'08	6°50'26				
retrograde	-2780 Aug 17 j 21:09	24° $\Upsilon$ 58'03		conjunction	-2772 May 17 j 02:34	2° $\mathcal{B}$ 13'33	-4°-20'-57
opposition	-2780 Nov 06 j 21:59	23° $\Upsilon$ 56'06	-6°-59'-57	minimum elong	-2772 May 17 j 02:41	2° $\mathcal{B}$ 13'34	4°20'56
min. Earth dist.	-2780 Nov 08 j 11:57	23° $\Upsilon$ 54'12	43.75880 AU	retrograde	-2772 Aug 26 j 21:20	3° $\mathcal{B}$ 51'35	
direct	-2779 Jan 27 j 15:01	22° $\Upsilon$ 53'29		opposition	-2772 Nov 15 j 12:44	2° $\mathcal{B}$ 48'13	-4°-22'-56
max. Earth dist.	-2779 May 07 j 09:35	24° $\Upsilon$ 25'14	45.65578 AU	min. Earth dist.	-2772 Nov 17 j 12:13	2° $\mathcal{B}$ 45'46	42.20580 AU
				direct	-2771 Feb 05 j 10:01	1° $\mathcal{B}$ 43'50	
conjunction	-2779 May 09 j 06:08	24° $\Upsilon$ 27'55	-6°-32'-44	max. Earth dist.	-2771 May 16 j 07:37	3° $\mathcal{B}$ 18'39	44.09884 AU
minimum elong	-2779 May 09 j 06:18	24° $\Upsilon$ 27'56	6°32'43				
retrograde	-2779 Aug 19 j 06:24	26° $\Upsilon$ 03'12		conjunction	-2771 May 18 j 13:16	3° $\mathcal{B}$ 22'01	-4°00'-59
opposition	-2779 Nov 08 j 05:15	25° $\Upsilon$ 01'07	-6°-41'-21	minimum elong	-2771 May 18 j 13:22	3° $\mathcal{B}$ 22'01	4°00'58
min. Earth dist.	-2779 Nov 09 j 21:39	24° $\Upsilon$ 59'05	43.57739 AU	retrograde	-2771 Aug 28 j 05:05	5° $\mathcal{B}$ 00'31	
direct	-2778 Jan 28 j 22:03	23° $\Upsilon$ 58'19		opposition	-2771 Nov 16 j 21:34	3° $\mathcal{B}$ 56'59	-4°-1'-56
max. Earth dist.	-2778 May 08 j 18:17	25° $\Upsilon$ 30'26	45.47333 AU	min. Earth dist.	-2771 Nov 18 j 22:01	3° $\mathcal{B}$ 54'29	42.00002 AU
				direct	-2770 Feb 06 j 20:05	2° $\mathcal{B}$ 52'23	
conjunction	-2778 May 10 j 15:27	25° $\Upsilon$ 33'10	-6°-14'-44	max. Earth dist.	-2770 May 17 j 17:01	4° $\mathcal{B}$ 27'39	43.89282 AU
minimum elong	-2778 May 10 j 15:36	25° $\Upsilon$ 33'11	6°14'43				
retrograde	-2778 Aug 20 j 12:00	27° $\Upsilon$ 08'48		conjunction	-2770 May 20 j 00:06	4° $\mathcal{B}$ 31'08	-3°-40'-44
opposition	-2778 Nov 09 j 12:37	26° $\Upsilon$ 06'34	-6°-22'-29	minimum elong	-2770 May 20 j 00:12	4° $\mathcal{B}$ 31'08	3°40'42



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 9

Attention, astronomical year style is used: The year -2770 in astronomical counting style is the year 2771 BCE in historical counting style.

retrograde	-2770 Aug 29 j 17:30	6°8'10"09		opposition	-2762 Nov 27 j 17:11	14°8'47"59	0°-39'-10
opposition	-2770 Nov 18 j 06:31	5°8'06"27	-3°-40'-37	min. Earth dist.	-2762 Nov 30 j 04:16	14°8'44"49	39.99585 AU
min. Earth dist.	-2770 Nov 20 j 07:25	5°8'03"54	41.79182 AU	direct	-2761 Feb 17 j 12:02	13°8'40"54	
direct	-2769 Feb 08 j 02:40	4°8'01"37			-2761 May 15 j 09:23	15°8'	
max. Earth dist.	-2769 May 19 j 02:42	5°8'37"23	43.68376 AU	max. Earth dist.	-2761 May 28 j 21:29	15°8'21"12	41.87856 AU
conjunction	-2769 May 21 j 11:17	5°8'40"57	-3°-20'-12	conjunction	-2761 May 31 j 15:33	15°8'25"35	0°-25'-49
minimum elong	-2769 May 21 j 11:22	5°8'40"58	3°20'10	minimum elong	-2761 May 31 j 15:34	15°8'25"35	0°25'45
retrograde	-2769 Aug 31 j 06:13	7°8'20"31		retrograde	-2761 Sep 10 j 07:09	17°8'09"49	
opposition	-2769 Nov 19 j 15:57	6°8'16"37	-3°-19'00	opposition	-2761 Nov 29 j 04:53	16°8'04"00	0°-15'-8
min. Earth dist.	-2769 Nov 21 j 19:05	6°8'13"57	41.58030 AU	min. Earth dist.	-2761 Dec 01 j 16:08	16°8'00"48	39.75950 AU
direct	-2768 Feb 09 j 09:40	5°8'11"34			-2760 Feb 02 j 08:18	15°8'	
max. Earth dist.	-2768 May 19 j 13:37	6°8'47"53	43.47111 AU	direct	-2760 Feb 19 j 02:45	14°8'56"36	
conjunction	-2768 May 21 j 22:56	6°8'51"32	-2°-59'-22		-2760 Mar 06 j 17:05	15°8'	
minimum elong	-2768 May 21 j 23:01	6°8'51"32	2°59'20	max. Earth dist.	-2760 May 29 j 09:34	16°8'37"31	41.64179 AU
retrograde	-2768 Aug 31 j 17:25	8°8'31"37		conjunction	-2760 Jun 01 j 05:25	16°8'42"02	0°-2'-49
opposition	-2768 Nov 20 j 01:29	7°8'27"32	-2°-57'-5	minimum elong	-2760 Jun 01 j 05:24	16°8'42"02	0°02'47
min. Earth dist.	-2768 Nov 22 j 05:01	7°8'24"50	41.36490 AU	behind sun begin	-2760 May 31 j 22:53	16°8'41"38	
direct	-2767 Feb 09 j 21:16	6°8'22"14		behind sun end	-2760 Jun 01 j 11:55	16°8'42"27	
max. Earth dist.	-2767 May 20 j 22:49	7°8'59"00	43.25428 AU	asc. node	-2760 Jul 14 j 23:47	17°8'47"16	
conjunction	-2767 May 23 j 10:47	8°8'02"50	-2°-38'-16	retrograde	-2760 Sep 10 j 20:25	18°8'26"58	
minimum elong	-2767 May 23 j 10:51	8°8'02"51	2°38'14	opposition	-2760 Nov 29 j 16:49	17°8'20"53	0°09'11
retrograde	-2767 Sep 02 j 05:06	9°8'43"28		min. Earth dist.	-2760 Dec 02 j 04:43	17°8'17"38	39.52225 AU
opposition	-2767 Nov 21 j 11:30	8°8'39"11	-2°-34'-51	direct	-2759 Feb 19 j 14:17	16°8'13"10	
min. Earth dist.	-2767 Nov 23 j 17:00	8°8'36"22	41.14541 AU	max. Earth dist.	-2759 May 30 j 23:37	17°8'54"50	41.40395 AU
direct	-2766 Feb 11 j 07:59	7°8'33"37		conjunction	-2759 Jun 02 j 19:46	17°8'59"25	0°20'34
max. Earth dist.	-2766 May 22 j 10:29	9°8'10"58	43.03322 AU	minimum elong	-2759 Jun 02 j 19:45	17°8'59"25	0°20'38
conjunction	-2766 May 24 j 22:52	9°8'14"51	-2°-16'-53	retrograde	-2759 Sep 12 j 09:38	19°8'45"04	
minimum elong	-2766 May 24 j 22:56	9°8'14"52	2°16'51	opposition	-2759 Dec 01 j 05:21	18°8'38"44	0°33'49
retrograde	-2766 Sep 03 j 14:47	10°8'56"03		min. Earth dist.	-2759 Dec 03 j 18:29	18°8'35"23	39.28399 AU
opposition	-2766 Nov 22 j 21:46	9°8'51"32	-2°-12'-19	direct	-2758 Feb 21 j 01:05	17°8'30"43	
min. Earth dist.	-2766 Nov 25 j 04:22	9°8'48"39	40.92172 AU	max. Earth dist.	-2758 Jun 01 j 13:28	19°8'13"07	41.16509 AU
direct	-2765 Feb 12 j 19:51	8°8'45"42		conjunction	-2758 Jun 04 j 10:13	19°8'17"46	0°44'07
max. Earth dist.	-2765 May 23 j 20:45	10°8'23"32	42.80822 AU	minimum elong	-2758 Jun 04 j 10:11	19°8'17"46	0°44'10
conjunction	-2765 May 26 j 11:13	10°8'27"34	-1°-55'-13	retrograde	-2758 Sep 14 j 01:49	21°8'04"11	
minimum elong	-2765 May 26 j 11:16	10°8'27"34	1°55'11	opposition	-2758 Dec 02 j 18:04	19°8'57"36	0°58'43
retrograde	-2765 Sep 05 j 03:13	12°8'09"20		min. Earth dist.	-2758 Dec 05 j 07:10	19°8'54"14	39.04455 AU
opposition	-2765 Nov 24 j 08:05	11°8'04"35	-1°-49'-29	direct	-2757 Feb 22 j 12:26	18°8'49"16	
min. Earth dist.	-2765 Nov 26 j 15:36	11°8'01"38	40.69444 AU	max. Earth dist.	-2757 Jun 03 j 02:48	20°8'32"24	40.92451 AU
direct	-2764 Feb 14 j 04:59	9°8'58"27		conjunction	-2757 Jun 06 j 01:18	20°8'37"11	1°07'56
max. Earth dist.	-2764 May 24 j 08:10	11°8'36"50	42.57957 AU	minimum elong	-2757 Jun 06 j 01:16	20°8'37"11	1°08'00
conjunction	-2764 May 26 j 23:59	11°8'40"59	-1°-33'-17	retrograde	-2757 Sep 15 j 19:43	22°8'24"22	
minimum elong	-2764 May 27 j 00:02	11°8'40"59	1°33'15	opposition	-2757 Dec 04 j 07:12	21°8'17"32	1°23'55
retrograde	-2764 Sep 05 j 16:26	13°8'23"21		min. Earth dist.	-2757 Dec 06 j 22:18	21°8'14"03	38.80329 AU
opposition	-2764 Nov 24 j 18:54	12°8'18"20	-1°-26'-21	direct	-2756 Feb 23 j 23:53	20°8'08"53	
min. Earth dist.	-2764 Nov 27 j 04:17	12°8'15"16	40.46386 AU	max. Earth dist.	-2756 Jun 03 j 18:21	21°8'52"52	40.68174 AU
direct	-2763 Feb 14 j 14:15	11°8'11"53		conjunction	-2756 Jun 06 j 16:57	21°8'57"42	1°32'01
max. Earth dist.	-2763 May 25 j 20:31	12°8'50"54	42.34802 AU	minimum elong	-2756 Jun 06 j 16:55	21°8'57"42	1°32'04
conjunction	-2763 May 28 j 12:52	12°8'55"06	-1°-11'-4	retrograde	-2756 Sep 16 j 11:33	23°8'45"40	
minimum elong	-2763 May 28 j 12:54	12°8'55"06	1°11'01	opposition	-2756 Dec 04 j 20:52	22°8'38"33	1°49'23
retrograde	-2763 Sep 07 j 07:10	14°8'38"04		min. Earth dist.	-2756 Dec 07 j 12:14	22°8'35"02	38.55957 AU
opposition	-2763 Nov 26 j 05:50	13°8'32"47	-1°-2'-55	direct	-2755 Feb 24 j 15:11	21°8'29"33	
min. Earth dist.	-2763 Nov 28 j 15:11	13°8'29"43	40.23076 AU	max. Earth dist.	-2755 Jun 05 j 07:58	23°8'14"15	40.43623 AU
direct	-2762 Feb 16 j 00:56	12°8'26"01		conjunction	-2755 Jun 08 j 08:50	23°8'19"17	1°56'20
max. Earth dist.	-2762 May 27 j 07:45	14°8'05"36	42.11410 AU	minimum elong	-2755 Jun 08 j 08:46	23°8'19"17	1°56'24
conjunction	-2762 May 30 j 02:02	14°8'09"57	0°-48'-34	retrograde	-2755 Sep 18 j 03:25	25°8'08"03	
minimum elong	-2762 May 30 j 02:03	14°8'09"57	0°48'32	opposition	-2755 Dec 06 j 10:58	24°8'00"38	2°15'08
retrograde	-2762 Jul 02 j 00:45	15°8'		min. Earth dist.	-2755 Dec 09 j 03:51	23°8'57"01	38.31321 AU
opposition	-2762 Sep 08 j 20:26	15°8'53"33		direct	-2754 Feb 26 j 05:01	22°8'51"17	
max. Earth dist.	-2762 Nov 18 j 08:52	15°8'		max. Earth dist.	-2754 Jun 07 j 00:02	24°8'36"50	40.18785 AU



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 10

Attention, astronomical year style is used: The year -2754 in astronomical counting style is the year 2755 BCE in historical counting style.

conjunction	-2754 Jun 10 j 01:21	24° <del>8</del> 41'56	2°20'53	max. Earth dist.	-2746 Jun 18 j 21:49	6° <del>II</del> 17'08	38.15070 AU
minimum elong	-2754 Jun 10 j 01:16	24° <del>8</del> 41'56	2°20'57				
retrograde	-2754 Sep 19 j 16:55	26° <del>8</del> 31'31		conjunction	-2746 Jun 22 j 04:39	6° <del>II</del> 22'59	5°44'28
opposition	-2754 Dec 08 j 01:31	25° <del>8</del> 23'47	2°41'08	minimum elong	-2746 Jun 22 j 04:28	6° <del>II</del> 22'59	5°44'32
min. Earth dist.	-2754 Dec 10 j 19:34	25° <del>8</del> 20'04	38.06409 AU	retrograde	-2746 Oct 01 j 21:57	8° <del>II</del> 20'03	
direct	-2753 Feb 27 j 21:02	24° <del>8</del> 14'03		opposition	-2746 Dec 19 j 14:41	7° <del>II</del> 09'32	6°17'05
max. Earth dist.	-2753 Jun 08 j 15:16	26° <del>8</del> 00'22	39.93692 AU	min. Earth dist.	-2746 Dec 22 j 12:46	7° <del>II</del> 05'25	36.03458 AU
				direct	-2745 Mar 11 j 03:47	5° <del>II</del> 56'33	
conjunction	-2753 Jun 11 j 18:06	26° <del>8</del> 05'37	2°45'41	max. Earth dist.	-2745 Jun 20 j 17:32	7° <del>II</del> 50'40	37.89657 AU
minimum elong	-2753 Jun 11 j 18:01	26° <del>8</del> 05'37	2°45'45				
retrograde	-2753 Sep 21 j 09:54	27° <del>8</del> 56'02		conjunction	-2745 Jun 24 j 01:30	7° <del>II</del> 56'39	6°10'33
opposition	-2753 Dec 09 j 16:25	26° <del>8</del> 47'57	3°07'24	minimum elong	-2745 Jun 24 j 01:17	7° <del>II</del> 56'38	6°10'38
min. Earth dist.	-2753 Dec 12 j 10:49	26° <del>8</del> 44'13	37.81265 AU	retrograde	-2745 Oct 03 j 20:28	9° <del>II</del> 54'49	
direct	-2752 Feb 29 j 10:31	25° <del>8</del> 37'50		opposition	-2745 Dec 21 j 09:55	8° <del>II</del> 43'58	6°44'48
max. Earth dist.	-2752 Jun 09 j 07:23	27° <del>8</del> 24'58	39.68356 AU	min. Earth dist.	-2745 Dec 24 j 09:36	8° <del>II</del> 39'44	35.78224 AU
				direct	-2744 Mar 11 j 21:12	7° <del>II</del> 30'36	
conjunction	-2752 Jun 12 j 11:29	27° <del>8</del> 30'20	3°10'41	max. Earth dist.	-2744 Jun 21 j 15:29	9° <del>II</del> 25'56	37.64233 AU
minimum elong	-2752 Jun 12 j 11:23	27° <del>8</del> 30'20	3°10'45				
retrograde	-2752 Sep 22 j 03:02	29° <del>8</del> 21'36		conjunction	-2744 Jun 24 j 23:02	9° <del>II</del> 31'57	6°36'43
opposition	-2752 Dec 10 j 07:50	28° <del>8</del> 13'11	3°33'54	minimum elong	-2744 Jun 24 j 22:49	9° <del>II</del> 31'56	6°36'48
min. Earth dist.	-2752 Dec 13 j 04:06	28° <del>8</del> 09'19	37.55927 AU	retrograde	-2744 Oct 04 j 20:07	11° <del>II</del> 31'14	
direct	-2751 Mar 02 j 00:01	27° <del>8</del> 02'38		opposition	-2744 Dec 22 j 05:42	10° <del>II</del> 20'03	7°12'36
max. Earth dist.	-2751 Jun 11 j 01:02	28° <del>8</del> 50'41	39.42863 AU	min. Earth dist.	-2744 Dec 25 j 05:15	10° <del>II</del> 15'49	35.52961 AU
				direct	-2743 Mar 13 j 17:56	9° <del>II</del> 06'17	
conjunction	-2751 Jun 14 j 05:13	28° <del>8</del> 56'07	3°35'54	max. Earth dist.	-2743 Jun 23 j 11:45	11° <del>II</del> 02'42	37.38752 AU
minimum elong	-2751 Jun 14 j 05:06	28° <del>8</del> 56'06	3°35'58				
	-2751 Jul 23 j 18:58	0° <del>II</del>		conjunction	-2743 Jun 26 j 21:09	11° <del>II</del> 08'55	7°02'57
retrograde	-2751 Sep 23 j 21:47	0° <del>II</del> 48'15		minimum elong	-2743 Jun 26 j 20:54	11° <del>II</del> 08'53	7°03'02
	-2751 Nov 26 j 17:54	30° <del>R</del> 8		retrograde	-2743 Oct 06 j 20:30	13° <del>II</del> 09'21	
opposition	-2751 Dec 11 j 23:41	29° <del>8</del> 39'28	4°00'38	opposition	-2743 Dec 24 j 02:16	11° <del>II</del> 57'48	7°40'30
min. Earth dist.	-2751 Dec 14 j 19:42	29° <del>8</del> 35'35	37.30471 AU	min. Earth dist.	-2743 Dec 27 j 03:00	11° <del>II</del> 53'28	35.27653 AU
direct	-2750 Mar 03 j 16:40	28° <del>8</del> 28'30		direct	-2742 Mar 15 j 13:30	10° <del>II</del> 43'37	
	-2750 Jun 02 j 12:56	0° <del>II</del>		max. Earth dist.	-2742 Jun 25 j 10:47	12° <del>II</del> 41'16	37.13198 AU
max. Earth dist.	-2750 Jun 12 j 17:14	0° <del>II</del> 17'24	39.17265 AU				
				conjunction	-2742 Jun 28 j 19:53	12° <del>II</del> 47'31	7°29'14
conjunction	-2750 Jun 15 j 23:10	0° <del>II</del> 22'59	4°01'18	minimum elong	-2742 Jun 28 j 19:38	12° <del>II</del> 47'30	7°29'19
minimum elong	-2750 Jun 15 j 23:02	0° <del>II</del> 22'58	4°01'22	retrograde	-2742 Oct 08 j 18:05	14° <del>II</del> 49'07	
retrograde	-2750 Sep 25 j 18:00	2° <del>II</del> 16'02		opposition	-2742 Dec 25 j 23:31	13° <del>II</del> 37'12	8°08'26
opposition	-2750 Dec 13 j 16:03	1° <del>II</del> 06'52	4°27'35	min. Earth dist.	-2742 Dec 29 j 00:46	13° <del>II</del> 32'47	35.02274 AU
min. Earth dist.	-2750 Dec 16 j 13:25	1° <del>II</del> 02'54	37.04971 AU	direct	-2741 Mar 17 j 11:33	12° <del>II</del> 22'34	
	-2749 Feb 14 j 17:43	30° <del>R</del> 8		max. Earth dist.	-2741 Jun 27 j 08:51	14° <del>II</del> 21'20	36.87586 AU
direct	-2749 Mar 05 j 08:34	29° <del>8</del> 55'29					
	-2749 Mar 23 j 23:10	0° <del>II</del>		conjunction	-2741 Jun 30 j 19:17	14° <del>II</del> 27'46	7°55'31
max. Earth dist.	-2749 Jun 14 j 12:28	1° <del>II</del> 45'25	38.91639 AU	minimum elong	-2741 Jun 30 j 19:00	14° <del>II</del> 27'44	7°55'35
				retrograde	-2741 Oct 10 j 17:43	16° <del>II</del> 30'31	
conjunction	-2749 Jun 17 j 17:50	1° <del>II</del> 51'01	4°26'53	opposition	-2741 Dec 27 j 21:11	15° <del>II</del> 18'13	8°36'24
minimum elong	-2749 Jun 17 j 17:41	1° <del>II</del> 51'00	4°26'57	min. Earth dist.	-2741 Dec 30 j 22:42	15° <del>II</del> 13'46	34.76869 AU
retrograde	-2749 Sep 27 j 11:13	3° <del>II</del> 44'59		direct	-2740 Mar 18 j 08:46	14° <del>II</del> 03'06	
opposition	-2749 Dec 15 j 08:49	2° <del>II</del> 35'29	4°54'43	max. Earth dist.	-2740 Jun 28 j 08:43	16° <del>II</del> 03'07	36.61936 AU
min. Earth dist.	-2749 Dec 18 j 06:13	2° <del>II</del> 31'28	36.79475 AU				
direct	-2748 Mar 06 j 02:42	1° <del>II</del> 23'41		conjunction	-2740 Jul 01 j 19:29	16° <del>II</del> 09'37	8°21'47
max. Earth dist.	-2748 Jun 15 j 06:16	3° <del>II</del> 14'32	38.66046 AU	minimum elong	-2740 Jul 01 j 19:12	16° <del>II</del> 09'36	8°21'52
				retrograde	-2740 Oct 11 j 16:57	18° <del>II</del> 13'34	
conjunction	-2748 Jun 18 j 12:54	3° <del>II</del> 20'17	4°52'37	opposition	-2740 Dec 28 j 19:50	17° <del>II</del> 00'51	9°04'22
minimum elong	-2748 Jun 18 j 12:44	3° <del>II</del> 20'16	4°52'41	min. Earth dist.	-2740 Dec 31 j 22:38	16° <del>II</del> 56'17	34.51466 AU
retrograde	-2748 Sep 28 j 06:16	5° <del>II</del> 15'14		direct	-2739 Mar 20 j 05:01	15° <del>II</del> 45'16	
opposition	-2748 Dec 16 j 02:14	4° <del>II</del> 05'23	5°22'01	max. Earth dist.	-2739 Jun 30 j 09:15	17° <del>II</del> 46'31	36.36327 AU
min. Earth dist.	-2748 Dec 18 j 23:55	4° <del>II</del> 01'20	36.54056 AU				
direct	-2747 Mar 07 j 19:28	2° <del>II</del> 53'10		conjunction	-2739 Jul 03 j 20:01	17° <del>II</del> 53'06	8°48'00
max. Earth dist.	-2747 Jun 17 j 01:57	4° <del>II</del> 45'07	38.40514 AU	minimum elong	-2739 Jul 03 j 19:43	17° <del>II</del> 53'04	8°48'04
				retrograde	-2739 Oct 13 j 17:42	19° <del>II</del> 58'15	
conjunction	-2747 Jun 20 j 08:32	4° <del>II</del> 50'54	5°18'29	opposition	-2739 Dec 30 j 18:59	18° <del>II</del> 45'06	9°32'15
minimum elong	-2747 Jun 20 j 08:21	4° <del>II</del> 50'53	5°18'33	min. Earth dist.	-2738 Jan 02 j 21:04	18° <del>II</del> 40'33	34.26145 AU
retrograde	-2747 Sep 30 j 00:38	6° <del>II</del> 46'53		direct	-2738 Mar 22 j 03:32	17° <del>II</del> 29'01	
opposition	-2747 Dec 17 j 20:17	5° <del>II</del> 36'42	5°49'29	max. Earth dist.	-2738 Jul 02 j 09:38	19° <del>II</del> 31'29	36.10811 AU
min. Earth dist.	-2747 Dec 20 j 18:52	5° <del>II</del> 32'34	36.28715 AU				
direct	-2746 Mar 09 j 11:50	4° <del>II</del> 24'06		conjunction	-2738 Jul 05 j 21:19	19° <del>II</del> 38'11	9°14'07



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 11

Attention, astronomical year style is used: The year -2738 in astronomical counting style is the year 2739 BCE in historical counting style.

minimum elong	-2738 Jul 05 j 21:00	19°II38'10	9°14'12	minimum elong	-2730 Jul 21 j 09:16	4°☾45'09	12°33'36
retrograde	-2738 Oct 15 j 20:10	21°II44'35		retrograde	-2730 Oct 31 j 16:26	7°☾02'25	
opposition	-2737 Jan 01 j 18:51	20°II30'59	10°00'03	opposition	-2729 Jan 16 j 23:06	5°☾45'33	13°32'04
min. Earth dist.	-2737 Jan 04 j 22:04	20°II26'20	34.00982 AU	min. Earth dist.	-2729 Jan 19 j 23:47	5°☾40'50	32.10727 AU
direct	-2737 Mar 24 j 01:17	19°II14'24		direct	-2729 Apr 07 j 21:16	4°☾25'17	
max. Earth dist.	-2737 Jul 04 j 12:46	21°II18'16	35.85486 AU	max. Earth dist.	-2729 Jul 20 j 09:05	6°☾40'43	33.94077 AU
conjunction	-2737 Jul 07 j 23:19	21°II24'57	9°40'05	conjunction	-2729 Jul 23 j 17:48	6°☾47'47	12°56'30
minimum elong	-2737 Jul 07 j 22:58	21°II24'55	9°40'10	minimum elong	-2729 Jul 23 j 17:24	6°☾47'45	12°56'34
retrograde	-2737 Oct 17 j 23:13	23°II32'35		retrograde	-2729 Nov 03 j 03:08	9°☾06'26	
opposition	-2736 Jan 03 j 19:31	22°II18'33	10°27'40	opposition	-2728 Jan 19 j 06:37	7°☾49'09	13°56'28
min. Earth dist.	-2736 Jan 06 j 21:50	22°II13'56	33.76043 AU	min. Earth dist.	-2728 Jan 22 j 07:38	7°☾44'23	31.88347 AU
direct	-2736 Mar 25 j 02:23	21°II01'27		direct	-2728 Apr 09 j 03:13	6°☾28'25	
max. Earth dist.	-2736 Jul 05 j 14:29	23°II06'36	35.60413 AU	max. Earth dist.	-2728 Jul 21 j 19:48	8°☾45'28	33.71541 AU
conjunction	-2736 Jul 09 j 01:53	23°II13'24	10°05'51	conjunction	-2728 Jul 25 j 02:47	8°☾52'27	13°18'51
minimum elong	-2736 Jul 09 j 01:32	23°II13'23	10°05'57	minimum elong	-2728 Jul 25 j 02:24	8°☾52'25	13°18'57
retrograde	-2736 Oct 19 j 03:40	25°II22'20		retrograde	-2728 Nov 04 j 13:08	11°☾12'31	
opposition	-2735 Jan 04 j 20:56	24°II07'52	10°55'05	opposition	-2727 Jan 20 j 15:02	9°☾54'48	14°20'11
min. Earth dist.	-2735 Jan 07 j 23:34	24°II03'12	33.51416 AU	min. Earth dist.	-2727 Jan 23 j 15:19	9°☾50'03	31.66307 AU
direct	-2735 Mar 27 j 02:09	22°II50'17		direct	-2727 Apr 11 j 12:26	8°☾33'36	
max. Earth dist.	-2735 Jul 07 j 19:19	24°II56'55	35.35664 AU	max. Earth dist.	-2727 Jul 24 j 05:11	10°☾52'05	33.49393 AU
conjunction	-2735 Jul 11 j 05:20	25°II03'41	10°31'23	conjunction	-2727 Jul 27 j 12:24	10°☾59'10	13°40'31
minimum elong	-2735 Jul 11 j 04:59	25°II03'39	10°31'27	minimum elong	-2727 Jul 27 j 12:00	10°☾59'08	13°40'35
retrograde	-2735 Oct 21 j 07:36	27°II13'55		retrograde	-2727 Nov 07 j 00:58	13°☾20'38	
opposition	-2734 Jan 06 j 23:16	25°II59'02	11°22'14	opposition	-2726 Jan 23 j 00:12	12°☾02'29	14°43'08
min. Earth dist.	-2734 Jan 10 j 01:27	25°II54'22	33.27134 AU	min. Earth dist.	-2726 Jan 25 j 23:44	11°☾57'45	31.44701 AU
direct	-2734 Mar 29 j 05:34	24°II41'00		direct	-2726 Apr 13 j 20:17	10°☾40'49	
max. Earth dist.	-2734 Jul 09 j 22:54	26°II49'00	35.11282 AU	max. Earth dist.	-2726 Jul 26 j 17:21	13°☾00'53	33.27700 AU
conjunction	-2734 Jul 13 j 09:13	26°II55'51	10°56'36	conjunction	-2726 Jul 29 j 22:48	13°☾07'52	14°01'24
minimum elong	-2734 Jul 13 j 08:52	26°II55'50	10°56'41	minimum elong	-2726 Jul 29 j 22:24	13°☾07'50	14°01'29
retrograde	-2734 Oct 23 j 14:13	29°II07'27		retrograde	-2726 Nov 09 j 11:42	15°☾30'44	
opposition	-2733 Jan 09 j 02:13	27°II52'10	11°49'03	opposition	-2725 Jan 25 j 10:22	14°☾12'09	15°05'13
min. Earth dist.	-2733 Jan 12 j 03:43	27°II47'30	33.03226 AU	min. Earth dist.	-2725 Jan 28 j 09:29	14°☾07'25	31.23578 AU
direct	-2733 Mar 31 j 07:39	26°II33'41		direct	-2725 Apr 16 j 06:17	12°☾50'01	
max. Earth dist.	-2733 Jul 12 j 04:39	28°II43'11	34.87236 AU	max. Earth dist.	-2725 Jul 29 j 05:13	15°☾11'35	33.06558 AU
conjunction	-2733 Jul 15 j 14:13	28°II50'03	11°21'28	conjunction	-2725 Aug 01 j 09:52	15°☾18'34	14°21'24
minimum elong	-2733 Jul 15 j 13:51	28°II50'01	11°21'32	minimum elong	-2725 Aug 01 j 09:28	15°☾18'32	14°21'28
retrograde	-2733 Aug 20 j 21:15	0°☾		retrograde	-2725 Nov 12 j 01:31	17°☾42'48	
opposition	-2733 Oct 25 j 18:16	1°☾03'01		opposition	-2724 Jan 27 j 21:11	16°☾23'48	15°26'21
min. Earth dist.	-2732 Jan 02 j 22:40	30°RII		min. Earth dist.	-2724 Jan 30 j 18:24	16°☾19'10	31.03048 AU
direct	-2732 Jan 11 j 06:06	29°II47'21	12°15'30	direct	-2724 Apr 17 j 16:26	15°☾01'13	
max. Earth dist.	-2732 Apr 01 j 09:37	28°II28'25	32.79651 AU	max. Earth dist.	-2724 Jul 30 j 18:49	17°☾24'21	32.86043 AU
conjunction	-2732 Jun 23 j 16:24	0°☾		conjunction	-2724 Aug 02 j 21:47	17°☾31'15	14°40'27
minimum elong	-2732 Jul 13 j 10:51	0°☾39'25	34.63521 AU	minimum elong	-2724 Aug 02 j 21:25	17°☾31'13	14°40'32
retrograde	-2732 Jul 16 j 19:54	0°☾46'19	11°45'57	retrograde	-2724 Nov 13 j 12:44	19°☾56'51	
opposition	-2732 Jul 16 j 19:31	0°☾46'17	11°46'02	opposition	-2723 Jan 29 j 09:13	18°☾37'27	15°46'25
min. Earth dist.	-2732 Oct 27 j 00:45	3°☾00'41		min. Earth dist.	-2723 Feb 01 j 06:03	18°☾32'49	30.83188 AU
direct	-2731 Jan 12 j 10:51	1°☾44'38	12°41'31	direct	-2723 Apr 20 j 01:53	17°☾14'27	
max. Earth dist.	-2731 Jan 15 j 11:52	1°☾39'57	32.56391 AU	max. Earth dist.	-2723 Aug 02 j 09:21	19°☾39'08	32.66265 AU
conjunction	-2731 Apr 03 j 13:06	0°☾25'16		conjunction	-2723 Aug 05 j 10:12	19°☾45'55	14°58'27
minimum elong	-2731 Jul 15 j 17:05	2°☾37'43	34.40084 AU	minimum elong	-2723 Aug 05 j 09:49	19°☾45'53	14°58'30
retrograde	-2731 Jul 19 j 02:19	2°☾44'42	12°09'59	retrograde	-2723 Nov 16 j 02:00	22°☾12'53	
opposition	-2731 Jul 19 j 01:55	2°☾44'40	12°10'03	opposition	-2722 Jan 31 j 21:57	20°☾53'07	16°05'19
min. Earth dist.	-2731 Oct 29 j 08:03	5°☾00'30		min. Earth dist.	-2722 Feb 03 j 16:09	20°☾48'37	30.64078 AU
direct	-2730 Jan 14 j 16:39	3°☾44'02	13°07'03	direct	-2722 Apr 22 j 13:57	19°☾29'43	
max. Earth dist.	-2730 Jan 17 j 18:27	3°☾39'16	32.33418 AU	max. Earth dist.	-2722 Aug 04 j 23:56	21°☾55'54	32.47263 AU
conjunction	-2730 Apr 05 j 15:14	2°☾24'13		conjunction	-2722 Aug 07 j 23:33	22°☾02'37	15°15'18
minimum elong	-2730 Jul 18 j 01:37	4°☾38'14	34.16938 AU	minimum elong	-2722 Aug 07 j 23:12	22°☾02'35	15°15'22
retrograde	-2730 Jul 21 j 09:39	4°☾45'11	12°33'31	retrograde	-2722 Nov 18 j 16:19	24°☾30'57	
opposition				opposition	-2721 Feb 03 j 11:31	23°☾10'49	16°22'58



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 12

Attention, astronomical year style is used: The year -2721 in astronomical counting style is the year 2722 BCE in historical counting style.

min. Earth dist.	-2721 Feb 06 j 05:08	23° $\mathring{S}$ 06'21	30.45754 AU	min. Earth dist.	-2713 Feb 25 j 09:02	12° $\mathring{N}$ 36'40	29.26707 AU
direct	-2721 Apr 24 j 23:28	21° $\mathring{S}$ 47'03		direct	-2713 May 14 j 13:00	11° $\mathring{N}$ 14'12	
max. Earth dist.	-2721 Aug 07 j 16:51	24° $\mathring{S}$ 14'52	32.29075 AU	max. Earth dist.	-2713 Aug 28 j 02:28	13° $\mathring{N}$ 52'13	31.11909 AU
conjunction	-2721 Aug 10 j 13:41	24° $\mathring{S}$ 21'23	15°30'56	conjunction	-2713 Aug 30 j 05:56	13° $\mathring{N}$ 57'21	16°44'00
minimum elong	-2721 Aug 10 j 13:21	24° $\mathring{S}$ 21'21	15°31'00	minimum elong	-2713 Aug 30 j 05:50	13° $\mathring{N}$ 57'21	16°44'03
retrograde	-2721 Nov 21 j 07:28	26° $\mathring{S}$ 51'03			-2713 Sep 26 j 01:12	15° $\mathring{N}$	
opposition	-2720 Feb 06 j 02:04	25° $\mathring{S}$ 30'36	16°39'17	retrograde	-2713 Dec 11 j 12:56	16° $\mathring{N}$ 35'38	
min. Earth dist.	-2720 Feb 08 j 17:10	25° $\mathring{S}$ 26'17	30.28209 AU	opposition	-2712 Feb 26 j 03:59	15° $\mathring{N}$ 12'52	17°52'59
direct	-2720 Apr 26 j 13:14	24° $\mathring{S}$ 06'31		min. Earth dist.	-2712 Feb 28 j 04:15	15° $\mathring{N}$ 09'29	29.15546 AU
max. Earth dist.	-2720 Aug 09 j 08:32	26° $\mathring{S}$ 35'43	32.11672 AU		-2712 Mar 04 j 20:01	15° $\mathring{R}$ $\mathring{N}$	
conjunction	-2720 Aug 12 j 04:25	26° $\mathring{S}$ 42'12	15°45'17	direct	-2712 May 16 j 07:35	13° $\mathring{N}$ 46'44	
minimum elong	-2720 Aug 12 j 04:06	26° $\mathring{S}$ 42'10	15°45'22		-2712 Jul 23 j 03:25	15° $\mathring{N}$	
retrograde	-2720 Nov 23 j 00:24	29° $\mathring{S}$ 13'11		max. Earth dist.	-2712 Aug 30 j 00:56	16° $\mathring{N}$ 25'44	31.01225 AU
opposition	-2719 Feb 07 j 17:34	27° $\mathring{S}$ 52'25	16°54'11	conjunction	-2712 Sep 01 j 00:59	16° $\mathring{N}$ 30'33	16°45'37
min. Earth dist.	-2719 Feb 10 j 07:37	27° $\mathring{S}$ 48'09	30.11439 AU	minimum elong	-2712 Sep 01 j 00:56	16° $\mathring{N}$ 30'33	16°45'41
direct	-2719 Apr 29 j 02:36	26° $\mathring{S}$ 28'02		retrograde	-2712 Dec 13 j 08:40	19° $\mathring{N}$ 09'34	
max. Earth dist.	-2719 Aug 12 j 03:19	28° $\mathring{S}$ 58'49	31.95051 AU	opposition	-2711 Feb 28 j 01:10	17° $\mathring{N}$ 46'35	17°53'58
conjunction	-2719 Aug 14 j 20:02	29° $\mathring{S}$ 05'02	15°58'16	min. Earth dist.	-2711 Mar 01 j 21:33	17° $\mathring{N}$ 43'27	29.05410 AU
minimum elong	-2719 Aug 14 j 19:44	29° $\mathring{S}$ 05'00	15°58'20	direct	-2711 May 19 j 05:12	16° $\mathring{N}$ 20'17	
	-2719 Sep 08 j 03:44	0° $\mathring{N}$		max. Earth dist.	-2711 Sep 01 j 23:03	19° $\mathring{N}$ 00'07	30.91633 AU
retrograde	-2719 Nov 25 j 16:57	1° $\mathring{N}$ 37'17		conjunction	-2711 Sep 03 j 20:25	19° $\mathring{N}$ 04'42	16°45'22
opposition	-2718 Feb 10 j 09:56	0° $\mathring{N}$ 16'12	17°07'37	minimum elong	-2711 Sep 03 j 20:23	19° $\mathring{N}$ 04'41	16°45'24
min. Earth dist.	-2718 Feb 12 j 22:04	0° $\mathring{N}$ 12'04	29.95409 AU	retrograde	-2711 Dec 16 j 04:52	21° $\mathring{N}$ 44'21	
	-2718 Feb 20 j 06:18	30° $\mathring{R}$ $\mathring{S}$		opposition	-2710 Mar 02 j 22:48	20° $\mathring{N}$ 21'10	17°52'54
direct	-2718 May 01 j 18:35	28° $\mathring{S}$ 51'32		min. Earth dist.	-2710 Mar 04 j 16:55	20° $\mathring{N}$ 18'12	28.96384 AU
	-2718 Jul 07 j 08:49	0° $\mathring{N}$		direct	-2710 May 22 j 00:07	18° $\mathring{N}$ 54'46	
max. Earth dist.	-2718 Aug 14 j 20:22	1° $\mathring{N}$ 23'36	31.79193 AU	max. Earth dist.	-2710 Sep 04 j 22:54	21° $\mathring{N}$ 35'30	30.83217 AU
conjunction	-2718 Aug 17 j 12:10	1° $\mathring{N}$ 29'47	16°09'50	conjunction	-2710 Sep 06 j 16:08	21° $\mathring{N}$ 39'40	16°43'10
minimum elong	-2718 Aug 17 j 11:54	1° $\mathring{N}$ 29'45	16°09'54	minimum elong	-2710 Sep 06 j 16:10	21° $\mathring{N}$ 39'41	16°43'13
retrograde	-2718 Nov 28 j 12:01	4° $\mathring{N}$ 03'14		retrograde	-2710 Dec 19 j 01:21	24° $\mathring{N}$ 19'54	
opposition	-2717 Feb 13 j 03:04	2° $\mathring{N}$ 41'51	17°19'29	opposition	-2709 Mar 05 j 20:51	22° $\mathring{N}$ 56'35	17°49'43
min. Earth dist.	-2717 Feb 15 j 13:28	2° $\mathring{N}$ 37'49	29.80124 AU	min. Earth dist.	-2709 Mar 07 j 11:09	22° $\mathring{N}$ 53'53	28.88492 AU
direct	-2717 May 04 j 09:41	1° $\mathring{N}$ 16'54		direct	-2709 May 24 j 21:26	21° $\mathring{N}$ 30'08	
max. Earth dist.	-2717 Aug 17 j 16:22	3° $\mathring{N}$ 50'23	31.64086 AU	max. Earth dist.	-2709 Sep 07 j 21:17	24° $\mathring{N}$ 11'30	30.75980 AU
conjunction	-2717 Aug 20 j 05:10	3° $\mathring{N}$ 56'19	16°19'55	conjunction	-2709 Sep 09 j 11:59	24° $\mathring{N}$ 15'26	16°39'00
minimum elong	-2717 Aug 20 j 04:55	3° $\mathring{N}$ 56'18	16°19'58	minimum elong	-2709 Sep 09 j 12:01	24° $\mathring{N}$ 15'26	16°39'03
retrograde	-2717 Dec 01 j 06:13	6° $\mathring{N}$ 30'54		retrograde	-2709 Dec 21 j 22:23	26° $\mathring{N}$ 56'09	
opposition	-2716 Feb 15 j 21:06	5° $\mathring{N}$ 09'13	17°29'44	opposition	-2708 Mar 07 j 19:16	25° $\mathring{N}$ 32'45	17°44'25
min. Earth dist.	-2716 Feb 18 j 06:03	5° $\mathring{N}$ 05'17	29.65566 AU	min. Earth dist.	-2708 Mar 09 j 06:45	25° $\mathring{N}$ 30'15	28.81762 AU
direct	-2716 May 06 j 04:07	3° $\mathring{N}$ 44'00		direct	-2708 May 26 j 17:50	24° $\mathring{N}$ 06'17	
max. Earth dist.	-2716 Aug 19 j 11:10	6° $\mathring{N}$ 18'40	31.49766 AU	max. Earth dist.	-2708 Sep 09 j 22:02	26° $\mathring{N}$ 48'25	30.69933 AU
conjunction	-2716 Aug 21 j 22:36	6° $\mathring{N}$ 24'30	16°28'26	conjunction	-2708 Sep 11 j 08:08	26° $\mathring{N}$ 51'53	16°32'53
minimum elong	-2716 Aug 21 j 22:24	6° $\mathring{N}$ 24'29	16°28'30	minimum elong	-2708 Sep 11 j 08:15	26° $\mathring{N}$ 51'54	16°32'56
retrograde	-2716 Dec 03 j 02:26	9° $\mathring{N}$ 00'08		retrograde	-2708 Dec 23 j 18:49	29° $\mathring{N}$ 33'00	
opposition	-2715 Feb 17 j 15:52	7° $\mathring{N}$ 38'10	17°38'17	opposition	-2707 Mar 10 j 18:06	28° $\mathring{N}$ 09'33	17°37'00
min. Earth dist.	-2715 Feb 19 j 22:08	7° $\mathring{N}$ 34'24	29.51787 AU	min. Earth dist.	-2707 Mar 12 j 02:18	28° $\mathring{N}$ 07'17	28.76160 AU
direct	-2715 May 08 j 22:41	6° $\mathring{N}$ 12'42		direct	-2707 May 29 j 16:22	26° $\mathring{N}$ 43'08	
max. Earth dist.	-2715 Aug 22 j 08:04	8° $\mathring{N}$ 48'36	31.36254 AU	max. Earth dist.	-2707 Sep 12 j 20:24	29° $\mathring{N}$ 25'41	30.65037 AU
conjunction	-2715 Aug 24 j 16:35	8° $\mathring{N}$ 54'11	16°35'20	conjunction	-2707 Sep 14 j 04:08	29° $\mathring{N}$ 28'55	16°24'48
minimum elong	-2715 Aug 24 j 16:24	8° $\mathring{N}$ 54'09	16°35'23	minimum elong	-2707 Sep 14 j 04:16	29° $\mathring{N}$ 28'55	16°24'51
retrograde	-2715 Dec 05 j 20:41	11° $\mathring{N}$ 30'47			-2707 Sep 26 j 22:59	0° $\mathring{N}$ $\mathring{N}$	
opposition	-2714 Feb 20 j 11:24	10° $\mathring{N}$ 08'32	17°45'04	retrograde	-2707 Dec 26 j 17:20	2° $\mathring{N}$ 10'20	
min. Earth dist.	-2714 Feb 22 j 16:25	10° $\mathring{N}$ 04'50	29.38811 AU	opposition	-2706 Mar 13 j 17:04	0° $\mathring{N}$ 46'51	17°27'28
direct	-2714 May 11 j 16:53	8° $\mathring{N}$ 42'49		min. Earth dist.	-2706 Mar 14 j 21:54	0° $\mathring{N}$ 44'49	28.71667 AU
max. Earth dist.	-2714 Aug 25 j 04:46	11° $\mathring{N}$ 19'47	31.23620 AU		-2706 Apr 11 j 23:20	30° $\mathring{R}$ $\mathring{N}$	
conjunction	-2714 Aug 27 j 11:00	11° $\mathring{N}$ 25'11	16°40'33	direct	-2706 Jun 01 j 13:06	29° $\mathring{N}$ 20'30	
minimum elong	-2714 Aug 27 j 10:53	11° $\mathring{N}$ 25'10	16°40'37		-2706 Jul 20 j 03:45	0° $\mathring{N}$	
retrograde	-2714 Dec 08 j 17:28	14° $\mathring{N}$ 02'39		max. Earth dist.	-2706 Sep 15 j 21:09	2° $\mathring{N}$ 03'33	30.61248 AU
opposition	-2713 Feb 23 j 07:14	12° $\mathring{N}$ 40'09	17°49'59	conjunction	-2706 Sep 17 j 00:30	2° $\mathring{N}$ 06'21	16°14'47



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 13

Attention, astronomical year style is used: The year -2706 in astronomical counting style is the year 2707 BCE in historical counting style.

minimum elong	-2706 Sep 17 j 00:42	2° $\mathring{\mu}$ 06'22	16°14'49	min. Earth dist.	-2697 Apr 07 j 05:54	24° $\mathring{\mu}$ 10'49	28.78071 AU
retrograde	-2706 Dec 29 j 13:58	4° $\mathring{\mu}$ 47'57		direct	-2697 Jun 26 j 04:29	22° $\mathring{\mu}$ 45'50	
opposition	-2705 Mar 16 j 16:13	3° $\mathring{\mu}$ 24'27	17°15'51				
min. Earth dist.	-2705 Mar 17 j 18:29	3° $\mathring{\mu}$ 22'36	28.68220 AU	conjunction	-2697 Oct 10 j 05:16	25° $\mathring{\mu}$ 26'44	13°24'06
direct	-2705 Jun 04 j 12:25	1° $\mathring{\mu}$ 58'13		minimum elong	-2697 Oct 10 j 05:40	25° $\mathring{\mu}$ 26'47	13°24'06
				max. Earth dist.	-2697 Oct 10 j 09:04	25° $\mathring{\mu}$ 27'07	30.75269 AU
conjunction	-2705 Sep 19 j 20:44	4° $\mathring{\mu}$ 43'59	16°02'52	retrograde	-2696 Jan 22 j 00:26	28° $\mathring{\mu}$ 05'08	
minimum elong	-2705 Sep 19 j 20:56	4° $\mathring{\mu}$ 44'00	16°02'54	opposition	-2696 Apr 09 j 04:01	26° $\mathring{\mu}$ 42'07	14°05'19
max. Earth dist.	-2705 Sep 18 j 19:37	4° $\mathring{\mu}$ 41'25	30.58535 AU	min. Earth dist.	-2696 Apr 08 j 23:25	26° $\mathring{\mu}$ 42'26	28.84361 AU
retrograde	-2704 Jan 01 j 12:53	7° $\mathring{\mu}$ 25'39		direct	-2696 Jun 28 j 02:38	25° $\mathring{\mu}$ 17'29	
opposition	-2704 Mar 18 j 15:32	6° $\mathring{\mu}$ 02'10	17°02'12				
min. Earth dist.	-2704 Mar 19 j 13:57	6° $\mathring{\mu}$ 00'36	28.65812 AU	conjunction	-2696 Oct 11 j 22:07	27° $\mathring{\mu}$ 57'23	12°57'12
direct	-2704 Jun 06 j 11:59	4° $\mathring{\mu}$ 36'02		minimum elong	-2696 Oct 11 j 22:32	27° $\mathring{\mu}$ 57'25	12°57'12
				max. Earth dist.	-2696 Oct 12 j 04:40	27° $\mathring{\mu}$ 58'02	30.82540 AU
conjunction	-2704 Sep 21 j 16:56	7° $\mathring{\mu}$ 21'37	15°49'05		-2696 Dec 09 j 13:35	0° $\mathring{\mu}$	
minimum elong	-2704 Sep 21 j 17:12	7° $\mathring{\mu}$ 21'38	15°49'06	retrograde	-2695 Jan 23 j 18:45	0° $\mathring{\mu}$ 35'02	
max. Earth dist.	-2704 Sep 20 j 20:01	7° $\mathring{\mu}$ 19'29	30.56865 AU		-2695 Mar 12 j 03:58	30° $\mathring{\mu}$	
retrograde	-2703 Jan 03 j 08:53	10° $\mathring{\mu}$ 03'15		opposition	-2695 Apr 12 j 00:53	29° $\mathring{\mu}$ 12'12	13°35'46
opposition	-2703 Mar 21 j 15:04	8° $\mathring{\mu}$ 39'46	16°46'32	min. Earth dist.	-2695 Apr 11 j 16:23	29° $\mathring{\mu}$ 12'47	28.91826 AU
min. Earth dist.	-2703 Mar 22 j 11:16	8° $\mathring{\mu}$ 38'21	28.64406 AU	direct	-2695 Jun 30 j 21:44	27° $\mathring{\mu}$ 47'54	
direct	-2703 Jun 09 j 10:31	7° $\mathring{\mu}$ 13'46			-2695 Oct 03 j 07:58	0° $\mathring{\mu}$	
conjunction	-2703 Sep 24 j 12:57	9° $\mathring{\mu}$ 59'00	15°33'27	conjunction	-2695 Oct 14 j 14:42	0° $\mathring{\mu}$ 26'44	12°29'01
minimum elong	-2703 Sep 24 j 13:13	9° $\mathring{\mu}$ 59'02	15°33'29	minimum elong	-2695 Oct 14 j 15:07	0° $\mathring{\mu}$ 26'47	12°29'02
max. Earth dist.	-2703 Sep 23 j 18:37	9° $\mathring{\mu}$ 57'08	30.56236 AU	max. Earth dist.	-2695 Oct 15 j 01:46	0° $\mathring{\mu}$ 27'50	30.90955 AU
retrograde	-2702 Jan 06 j 07:26	12° $\mathring{\mu}$ 40'28		retrograde	-2694 Jan 26 j 10:01	3° $\mathring{\mu}$ 03'34	
opposition	-2702 Mar 24 j 14:09	11° $\mathring{\mu}$ 17'01	16°28'56	opposition	-2694 Apr 14 j 21:05	1° $\mathring{\mu}$ 40'59	13°04'53
min. Earth dist.	-2702 Mar 25 j 06:13	11° $\mathring{\mu}$ 15'53	28.64012 AU	min. Earth dist.	-2694 Apr 14 j 09:45	1° $\mathring{\mu}$ 41'45	29.00386 AU
direct	-2702 Jun 12 j 10:50	9° $\mathring{\mu}$ 51'08		direct	-2694 Jul 03 j 18:33	0° $\mathring{\mu}$ 17'02	
conjunction	-2702 Sep 27 j 08:48	12° $\mathring{\mu}$ 35'56	15°16'03	conjunction	-2694 Oct 17 j 06:33	2° $\mathring{\mu}$ 54'46	11°59'39
minimum elong	-2702 Sep 27 j 09:07	12° $\mathring{\mu}$ 35'58	15°16'04	minimum elong	-2694 Oct 17 j 06:58	2° $\mathring{\mu}$ 54'48	11°59'39
max. Earth dist.	-2702 Sep 26 j 18:14	12° $\mathring{\mu}$ 34'27	30.56632 AU	max. Earth dist.	-2694 Oct 17 j 19:52	2° $\mathring{\mu}$ 56'05	31.00441 AU
retrograde	-2701 Jan 09 j 03:43	15° $\mathring{\mu}$ 17'07		retrograde	-2693 Jan 29 j 03:19	5° $\mathring{\mu}$ 30'44	
opposition	-2701 Mar 27 j 13:21	13° $\mathring{\mu}$ 53'40	16°09'24	opposition	-2693 Apr 17 j 16:47	4° $\mathring{\mu}$ 08'23	12°32'47
min. Earth dist.	-2701 Mar 28 j 03:14	13° $\mathring{\mu}$ 52'42	28.64627 AU	min. Earth dist.	-2693 Apr 17 j 01:25	4° $\mathring{\mu}$ 09'25	29.09990 AU
direct	-2701 Jun 15 j 10:05	12° $\mathring{\mu}$ 27'57		direct	-2693 Jul 06 j 13:34	2° $\mathring{\mu}$ 44'48	
conjunction	-2701 Sep 30 j 04:10	15° $\mathring{\mu}$ 12'09	14°56'54	conjunction	-2693 Oct 19 j 21:53	5° $\mathring{\mu}$ 21'22	11°29'14
minimum elong	-2701 Sep 30 j 04:29	15° $\mathring{\mu}$ 12'11	14°56'56	minimum elong	-2693 Oct 19 j 22:17	5° $\mathring{\mu}$ 21'25	11°29'14
max. Earth dist.	-2701 Sep 29 j 16:45	15° $\mathring{\mu}$ 10'59	30.58087 AU	max. Earth dist.	-2693 Oct 20 j 15:26	5° $\mathring{\mu}$ 23'06	31.10921 AU
retrograde	-2700 Jan 11 j 23:50	17° $\mathring{\mu}$ 52'57		retrograde	-2692 Jan 31 j 17:56	7° $\mathring{\mu}$ 56'26	
opposition	-2700 Mar 29 j 12:10	16° $\mathring{\mu}$ 29'32	15°48'02	opposition	-2692 Apr 19 j 12:06	6° $\mathring{\mu}$ 34'20	11°59'36
min. Earth dist.	-2700 Mar 29 j 21:39	16° $\mathring{\mu}$ 28'52	28.66287 AU	min. Earth dist.	-2692 Apr 18 j 18:34	6° $\mathring{\mu}$ 35'31	29.20555 AU
direct	-2700 Jun 17 j 10:17	15° $\mathring{\mu}$ 03'58		direct	-2692 Jul 08 j 08:12	5° $\mathring{\mu}$ 11'09	
conjunction	-2700 Oct 01 j 23:10	17° $\mathring{\mu}$ 47'28	14°36'05	conjunction	-2692 Oct 21 j 12:34	7° $\mathring{\mu}$ 46'30	10°57'50
minimum elong	-2700 Oct 01 j 23:32	17° $\mathring{\mu}$ 47'30	14°36'06	minimum elong	-2692 Oct 21 j 12:59	7° $\mathring{\mu}$ 46'32	10°57'49
max. Earth dist.	-2700 Oct 01 j 15:15	17° $\mathring{\mu}$ 46'40	30.60624 AU	max. Earth dist.	-2692 Oct 22 j 08:20	7° $\mathring{\mu}$ 48'26	31.22338 AU
retrograde	-2699 Jan 13 j 19:08	20° $\mathring{\mu}$ 27'47		retrograde	-2691 Feb 02 j 10:26	10° $\mathring{\mu}$ 20'35	
opposition	-2699 Apr 01 j 10:49	19° $\mathring{\mu}$ 04'25	15°24'52	min. Earth dist.	-2691 Apr 21 j 08:56	9° $\mathring{\mu}$ 00'12	29.32032 AU
min. Earth dist.	-2699 Apr 01 j 17:39	19° $\mathring{\mu}$ 03'57	28.69055 AU	opposition	-2691 Apr 22 j 06:33	8° $\mathring{\mu}$ 58'45	11°25'26
direct	-2699 Jun 20 j 08:10	17° $\mathring{\mu}$ 39'02		direct	-2691 Jul 11 j 03:16	7° $\mathring{\mu}$ 35'57	
conjunction	-2699 Oct 04 j 17:37	20° $\mathring{\mu}$ 21'44	14°13'37	conjunction	-2691 Oct 24 j 02:41	10° $\mathring{\mu}$ 10'03	10°25'36
minimum elong	-2699 Oct 04 j 17:59	20° $\mathring{\mu}$ 21'46	14°13'38	minimum elong	-2691 Oct 24 j 03:04	10° $\mathring{\mu}$ 10'05	10°25'36
max. Earth dist.	-2699 Oct 04 j 13:43	20° $\mathring{\mu}$ 21'20	30.64318 AU	max. Earth dist.	-2691 Oct 25 j 01:55	10° $\mathring{\mu}$ 12'18	31.34613 AU
retrograde	-2698 Jan 16 j 14:22	23° $\mathring{\mu}$ 01'28		retrograde	-2690 Feb 05 j 01:04	12° $\mathring{\mu}$ 43'07	
opposition	-2698 Apr 04 j 08:57	21° $\mathring{\mu}$ 38'11	14°59'58	min. Earth dist.	-2690 Apr 24 j 01:01	11° $\mathring{\mu}$ 23'06	29.44353 AU
min. Earth dist.	-2698 Apr 04 j 11:30	21° $\mathring{\mu}$ 38'01	28.72966 AU	opposition	-2690 Apr 25 j 00:30	11° $\mathring{\mu}$ 21'32	10°50'26
direct	-2698 Jun 23 j 07:50	20° $\mathring{\mu}$ 13'00		direct	-2690 Jul 13 j 21:52	9° $\mathring{\mu}$ 59'07	
conjunction	-2698 Oct 07 j 11:38	22° $\mathring{\mu}$ 54'51	13°49'36	conjunction	-2690 Oct 26 j 16:06	12° $\mathring{\mu}$ 31'55	9°52'37
minimum elong	-2698 Oct 07 j 12:01	22° $\mathring{\mu}$ 54'53	13°49'36	minimum elong	-2690 Oct 26 j 16:29	12° $\mathring{\mu}$ 31'57	9°52'35
max. Earth dist.	-2698 Oct 07 j 10:54	22° $\mathring{\mu}$ 54'46	30.69185 AU	max. Earth dist.	-2690 Oct 27 j 17:39	12° $\mathring{\mu}$ 34'22	31.47710 AU
retrograde	-2697 Jan 19 j 07:52	25° $\mathring{\mu}$ 33'57		retrograde	-2689 Feb 07 j 15:25	15° $\mathring{\mu}$ 03'55	
opposition	-2697 Apr 07 j 06:39	24° $\mathring{\mu}$ 10'46	14°33'26	opposition	-2689 Apr 27 j 17:29	13° $\mathring{\mu}$ 42'35	10°14'42



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 14

Attention, astronomical year style is used: The year -2689 in astronomical counting style is the year 2690 BCE in historical counting style.

min. Earth dist.	-2689 Apr 26 j 14:18	13° <del>2</del> 44'24	29.57475 AU	opposition	-2681 May 16 j 06:22	1° <del>1</del> 23'20	5°13'36
direct	-2689 Jul 16 j 16:40	12° <del>2</del> 20'33		direct	-2681 Aug 04 j 07:43	0° <del>1</del> 04'33	
conjunction	-2689 Oct 29 j 04:49	14° <del>2</del> 52'00	9°18'58	conjunction	-2681 Nov 15 j 07:05	2° <del>1</del> 24'54	4°36'45
minimum elong	-2689 Oct 29 j 05:11	14° <del>2</del> 52'02	9°18'58	minimum elong	-2681 Nov 15 j 07:17	2° <del>1</del> 24'55	4°36'43
max. Earth dist.	-2689 Oct 30 j 09:05	14° <del>2</del> 54'42	31.61583 AU	max. Earth dist.	-2681 Nov 17 j 08:44	2° <del>1</del> 29'22	33.01916 AU
retrograde	-2688 Feb 10 j 03:47	17° <del>2</del> 22'53		retrograde	-2680 Feb 27 j 04:59	4° <del>1</del> 46'28	
min. Earth dist.	-2688 Apr 28 j 04:45	16° <del>2</del> 03'45	29.71404 AU	min. Earth dist.	-2680 May 15 j 12:52	3° <del>1</del> 31'07	31.12763 AU
opposition	-2688 Apr 29 j 10:01	16° <del>2</del> 01'49	9°38'19	opposition	-2680 May 17 j 16:32	3° <del>1</del> 27'51	4°35'26
direct	-2688 Jul 18 j 09:01	14° <del>2</del> 40'09		direct	-2680 Aug 05 j 17:58	2° <del>1</del> 09'30	
conjunction	-2688 Oct 30 j 16:42	17° <del>2</del> 10'13	8°44'46	conjunction	-2680 Nov 16 j 13:12	4° <del>1</del> 28'30	4°01'04
minimum elong	-2688 Oct 30 j 17:03	17° <del>2</del> 10'15	8°44'44	minimum elong	-2680 Nov 16 j 13:21	4° <del>1</del> 28'31	4°01'01
max. Earth dist.	-2688 Nov 01 j 00:06	17° <del>2</del> 13'12	31.76257 AU	max. Earth dist.	-2680 Nov 18 j 16:57	4° <del>1</del> 33'07	33.22715 AU
retrograde	-2687 Feb 11 j 15:28	19° <del>2</del> 39'57		retrograde	-2679 Feb 28 j 11:53	6° <del>1</del> 48'55	
min. Earth dist.	-2687 Apr 30 j 17:06	18° <del>2</del> 21'16	29.86137 AU	min. Earth dist.	-2679 May 17 j 21:03	5° <del>1</del> 34'00	31.33673 AU
opposition	-2687 May 02 j 01:35	18° <del>2</del> 19'07	9°01'23	opposition	-2679 May 20 j 02:06	5° <del>1</del> 30'39	3°57'25
direct	-2687 Jul 21 j 03:22	16° <del>2</del> 57'50		direct	-2679 Aug 08 j 03:50	4° <del>1</del> 12'45	
conjunction	-2687 Nov 02 j 03:47	19° <del>2</del> 26'29	8°10'06	conjunction	-2679 Nov 18 j 18:54	6° <del>1</del> 30'25	3°25'32
minimum elong	-2687 Nov 02 j 04:07	19° <del>2</del> 26'31	8°10'05	minimum elong	-2679 Nov 18 j 19:03	6° <del>1</del> 30'26	3°25'29
max. Earth dist.	-2687 Nov 03 j 13:24	19° <del>2</del> 29'39	31.91728 AU	max. Earth dist.	-2679 Nov 21 j 00:50	6° <del>1</del> 35'11	33.44010 AU
retrograde	-2686 Feb 14 j 02:52	21° <del>2</del> 55'03		retrograde	-2678 Mar 02 j 17:27	8° <del>1</del> 49'40	
min. Earth dist.	-2686 May 03 j 04:54	20° <del>2</del> 36'49	30.01725 AU	min. Earth dist.	-2678 May 20 j 03:39	7° <del>1</del> 35'12	31.55041 AU
opposition	-2686 May 04 j 16:14	20° <del>2</del> 34'29	8°24'01	opposition	-2678 May 22 j 10:38	7° <del>1</del> 31'44	3°19'37
direct	-2686 Jul 23 j 17:54	19° <del>2</del> 13'34		direct	-2678 Aug 10 j 15:05	6° <del>1</del> 14'16	
conjunction	-2686 Nov 04 j 14:16	21° <del>2</del> 40'49	7°35'02	conjunction	-2678 Nov 20 j 23:50	8° <del>1</del> 30'37	2°50'12
minimum elong	-2686 Nov 04 j 14:34	21° <del>2</del> 40'51	7°35'00	minimum elong	-2678 Nov 20 j 23:57	8° <del>1</del> 30'38	2°50'09
max. Earth dist.	-2686 Nov 06 j 03:33	21° <del>2</del> 44'19	32.08049 AU	max. Earth dist.	-2678 Nov 23 j 06:43	8° <del>1</del> 35'26	33.65707 AU
retrograde	-2685 Feb 16 j 10:40	24° <del>2</del> 08'12		retrograde	-2677 Mar 04 j 23:10	10° <del>1</del> 48'43	
min. Earth dist.	-2685 May 05 j 16:15	22° <del>2</del> 50'24	30.18177 AU	min. Earth dist.	-2677 May 22 j 09:43	9° <del>1</del> 34'40	31.76826 AU
opposition	-2685 May 07 j 06:13	22° <del>2</del> 47'55	7°46'17	opposition	-2677 May 24 j 18:43	9° <del>1</del> 31'07	2°42'07
direct	-2685 Jul 26 j 09:34	21° <del>2</del> 27'23		direct	-2677 Aug 12 j 23:03	8° <del>1</del> 14'02	
conjunction	-2685 Nov 06 j 23:41	23° <del>2</del> 53'14	6°59'40	conjunction	-2677 Nov 23 j 04:08	10° <del>1</del> 29'04	2°15'08
minimum elong	-2685 Nov 06 j 23:58	23° <del>2</del> 53'16	6°59'38	minimum elong	-2677 Nov 23 j 04:14	10° <del>1</del> 29'05	2°15'06
max. Earth dist.	-2685 Nov 08 j 14:49	23° <del>2</del> 56'52	32.25228 AU	max. Earth dist.	-2677 Nov 25 j 13:33	10° <del>1</del> 34'04	33.87771 AU
retrograde	-2684 Feb 18 j 20:16	26° <del>2</del> 19'27		retrograde	-2676 Mar 06 j 00:47	12° <del>1</del> 46'00	
min. Earth dist.	-2684 May 07 j 01:50	25° <del>2</del> 02'10	30.35521 AU	min. Earth dist.	-2676 May 23 j 16:05	11° <del>1</del> 32'20	31.98968 AU
opposition	-2684 May 08 j 19:26	24° <del>2</del> 59'28	7°08'17	opposition	-2676 May 26 j 02:05	11° <del>1</del> 28'43	2°04'56
direct	-2684 Jul 27 j 21:46	23° <del>2</del> 39'20		direct	-2676 Aug 14 j 08:22	10° <del>1</del> 12'03	
conjunction	-2684 Nov 08 j 08:41	26° <del>2</del> 03'48	6°24'04	conjunction	-2676 Nov 24 j 07:44	12° <del>1</del> 25'45	1°40'23
minimum elong	-2684 Nov 08 j 08:56	26° <del>2</del> 03'49	6°24'02	minimum elong	-2676 Nov 24 j 07:48	12° <del>1</del> 25'46	1°40'20
max. Earth dist.	-2684 Nov 10 j 03:37	26° <del>2</del> 07'45	32.43263 AU	max. Earth dist.	-2676 Nov 26 j 17:37	12° <del>1</del> 30'45	34.10171 AU
retrograde	-2683 Feb 20 j 03:52	28° <del>2</del> 28'51		retrograde	-2675 Mar 08 j 04:12	14° <del>1</del> 41'32	
min. Earth dist.	-2683 May 09 j 12:25	27° <del>2</del> 11'59	30.53715 AU	min. Earth dist.	-2675 May 25 j 20:01	13° <del>1</del> 28'17	32.21481 AU
opposition	-2683 May 11 j 07:51	27° <del>2</del> 09'11	6°30'07	opposition	-2675 May 28 j 08:29	13° <del>1</del> 24'33	1°28'09
direct	-2683 Jul 30 j 10:04	25° <del>2</del> 49'30		direct	-2675 Aug 16 j 14:39	12° <del>1</del> 08'15	
conjunction	-2683 Nov 10 j 16:47	28° <del>2</del> 12'34	5°48'20	conjunction	-2675 Nov 26 j 10:42	14° <del>1</del> 20'40	1°05'59
minimum elong	-2683 Nov 10 j 17:01	28° <del>2</del> 12'35	5°48'18	minimum elong	-2675 Nov 26 j 10:44	14° <del>1</del> 20'40	1°05'57
max. Earth dist.	-2683 Nov 12 j 13:24	28° <del>2</del> 16'38	32.62108 AU	max. Earth dist.	-2675 Nov 28 j 23:11	14° <del>1</del> 25'50	34.32918 AU
retrograde	-2682 Jan 05 j 02:33	0° <del>1</del> 00'00		retrograde	-2675 Dec 15 j 21:00	15° <del>1</del> 00'00	
min. Earth dist.	-2682 Feb 22 j 13:04	0° <del>1</del> 36'27		min. Earth dist.	-2674 Mar 10 j 05:44	16° <del>1</del> 35'18	
opposition	-2682 Apr 14 j 11:08	30° <del>1</del> 00'00		opposition	-2674 May 28 j 01:16	15° <del>1</del> 22'22	32.44374 AU
direct	-2682 May 11 j 20:16	29° <del>2</del> 20'09	30.72706 AU	direct	-2674 May 30 j 14:17	15° <del>1</del> 18'37	0°51'47
conjunction	-2682 May 13 j 19:24	29° <del>2</del> 17'07	5°51'52	conjunction	-2674 Jun 12 j 08:21	15° <del>1</del> 00'00	
minimum elong	-2682 Aug 01 j 21:26	27° <del>2</del> 57'53		minimum elong	-2674 Aug 18 j 20:32	14° <del>1</del> 02'41	
max. Earth dist.	-2682 Nov 03 j 23:25	0° <del>1</del> 00'00		max. Earth dist.	-2674 Oct 21 j 00:58	15° <del>1</del> 00'00	
retrograde	-2682 Nov 13 j 00:15	0° <del>1</del> 19'35	5°12'32	retrograde	-2674 Nov 28 j 12:51	16° <del>1</del> 13'49	0°31'59
min. Earth dist.	-2682 Nov 13 j 00:27	0° <del>1</del> 19'36	5°12'29	min. Earth dist.	-2674 Nov 28 j 12:52	16° <del>1</del> 13'49	0°31'55
opposition	-2682 Nov 15 j 00:05	0° <del>1</del> 23'55	32.81678 AU	opposition	-2674 Dec 01 j 02:20	16° <del>1</del> 19'02	34.56048 AU
direct	-2681 Feb 24 j 21:01	2° <del>1</del> 42'19		direct	-2673 Mar 12 j 08:36	18° <del>1</del> 27'21	
conjunction	-2681 May 14 j 05:48	1° <del>1</del> 26'26	30.92415 AU	conjunction	-2673 May 30 j 03:24	17° <del>1</del> 14'52	32.67685 AU



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 15

Attention, astronomical year style is used: The year -2673 in astronomical counting style is the year 2674 BCE in historical counting style.

opposition	-2673 Jun 01 j 19:14	17°M10'58	0°15'53	max. Earth dist.	-2666 Dec 15 j 10:27	0°Z31'46	36.53427 AU
direct	-2673 Aug 21 j 01:41	15°M55'25		retrograde	-2665 Mar 26 j 08:21	2°Z31'33	
desc. node	-2673 Nov 12 j 21:06	17°M29'57		min. Earth dist.	-2665 Jun 13 j 11:37	1°Z22'09	34.66550 AU
				opposition	-2665 Jun 16 j 12:20	1°Z17'54	-4°-10'-58
conjunction	-2673 Nov 30 j 14:26	18°M05'19	0°-1'-39	direct	-2665 Sep 04 j 18:14	0°Z05'32	
minimum elong	-2673 Nov 30 j 14:26	18°M05'19	0°01'43				
behind sun begin	-2673 Nov 30 j 08:04	18°M04'48		conjunction	-2665 Dec 14 j 07:57	2°Z06'41	-4°-11'-38
behind sun end	-2673 Nov 30 j 20:48	18°M05'49		minimum elong	-2665 Dec 14 j 07:49	2°Z06'40	4°11'43
max. Earth dist.	-2673 Dec 03 j 06:01	18°M10'39	34.79583 AU	max. Earth dist.	-2665 Dec 17 j 08:40	2°Z12'26	36.78768 AU
retrograde	-2672 Mar 13 j 11:33	20°M17'45		retrograde	-2664 Mar 27 j 05:31	4°Z11'16	
min. Earth dist.	-2672 May 31 j 06:51	19°M05'37	32.91446 AU	min. Earth dist.	-2664 Jun 14 j 10:08	3°Z02'12	34.91996 AU
opposition	-2672 Jun 02 j 23:41	19°M01'41	0°-19'-30	opposition	-2664 Jun 17 j 11:50	2°Z57'55	-4°-41'-30
direct	-2672 Aug 22 j 05:16	17°M46'31		direct	-2664 Sep 05 j 18:57	1°Z45'53	
conjunction	-2672 Dec 01 j 15:28	19°M55'13	0°-34'-44	conjunction	-2664 Dec 15 j 04:53	3°Z46'01	-4°-40'-18
minimum elong	-2672 Dec 01 j 15:26	19°M55'13	0°34'49	minimum elong	-2664 Dec 15 j 04:43	3°Z46'00	4°40'23
max. Earth dist.	-2672 Dec 04 j 08:44	20°M00'40	35.03553 AU	max. Earth dist.	-2664 Dec 18 j 05:32	3°Z51'43	37.04059 AU
retrograde	-2671 Mar 15 j 13:02	22°M06'36		retrograde	-2663 Mar 29 j 03:43	5°Z49'40	
min. Earth dist.	-2671 Jun 02 j 08:25	20°M54'54	33.15628 AU	min. Earth dist.	-2663 Jun 16 j 08:39	4°Z40'53	35.17420 AU
opposition	-2671 Jun 05 j 03:16	20°M50'52	0°-54'-22	opposition	-2663 Jun 19 j 10:52	4°Z36'35	-5°-11'-22
direct	-2671 Aug 24 j 09:42	19°M36'06		direct	-2663 Sep 07 j 18:12	3°Z24'52	
conjunction	-2671 Dec 03 j 15:52	21°M43'40	-1°-7'-21	conjunction	-2663 Dec 17 j 01:28	5°Z24'00	-5°-8'-22
minimum elong	-2671 Dec 03 j 15:50	21°M43'39	1°07'25	minimum elong	-2663 Dec 17 j 01:19	5°Z23'59	5°08'27
max. Earth dist.	-2671 Dec 06 j 10:09	21°M49'09	35.27905 AU	max. Earth dist.	-2663 Dec 20 j 03:37	5°Z29'46	37.29320 AU
retrograde	-2670 Mar 17 j 13:47	23°M54'00		retrograde	-2662 Mar 30 j 22:13	7°Z26'42	
min. Earth dist.	-2670 Jun 04 j 09:48	22°M42'44	33.40209 AU	min. Earth dist.	-2662 Jun 18 j 06:56	6°Z18'10	35.42825 AU
opposition	-2670 Jun 07 j 06:10	22°M38'37	-1°-28'-40	opposition	-2662 Jun 21 j 09:06	6°Z13'53	-5°-40'-33
direct	-2670 Aug 26 j 12:24	21°M24'17		direct	-2662 Sep 09 j 19:19	5°Z02'27	
conjunction	-2670 Dec 05 j 15:50	23°M30'42	-1°-39'-28	conjunction	-2662 Dec 18 j 21:22	7°Z00'36	-5°-35'-49
minimum elong	-2670 Dec 05 j 15:46	23°M30'42	1°39'33	minimum elong	-2662 Dec 18 j 21:11	7°Z00'35	5°35'54
max. Earth dist.	-2670 Dec 08 j 12:27	23°M36'21	35.52611 AU	max. Earth dist.	-2662 Dec 21 j 23:13	7°Z06'19	37.54586 AU
retrograde	-2669 Mar 19 j 11:38	25°M40'03		retrograde	-2661 Apr 01 j 17:56	9°Z02'24	
min. Earth dist.	-2669 Jun 06 j 11:17	24°M29'10	33.65113 AU	min. Earth dist.	-2661 Jun 20 j 03:06	7°Z54'11	35.68285 AU
opposition	-2669 Jun 09 j 08:34	24°M25'02	-2°-2'-23	opposition	-2661 Jun 23 j 06:57	7°Z49'50	-6°-9'-4
direct	-2669 Aug 28 j 17:26	23°M11'06		direct	-2661 Sep 11 j 17:14	6°Z38'42	
conjunction	-2669 Dec 07 j 15:02	25°M16'26	-2°-11'-2	conjunction	-2661 Dec 20 j 16:47	8°Z35'52	-6°-2'-37
minimum elong	-2669 Dec 07 j 14:58	25°M16'25	2°11'06	minimum elong	-2661 Dec 20 j 16:37	8°Z35'52	6°02'43
max. Earth dist.	-2669 Dec 10 j 11:55	25°M22'03	35.77593 AU	max. Earth dist.	-2661 Dec 23 j 20:25	8°Z41'41	37.79907 AU
retrograde	-2668 Mar 20 j 11:54	27°M24'48		retrograde	-2660 Apr 02 j 10:53	10°Z36'48	
min. Earth dist.	-2668 Jun 07 j 11:04	26°M14'22	33.90287 AU	min. Earth dist.	-2660 Jun 21 j 00:49	9°Z28'49	35.93825 AU
opposition	-2668 Jun 10 j 10:24	26°M10'08	-2°-35'-28	opposition	-2660 Jun 24 j 04:19	9°Z24'30	-6°-36'-54
direct	-2668 Aug 29 j 19:00	24°M56'37		direct	-2660 Sep 12 j 16:21	8°Z13'39	
conjunction	-2668 Dec 08 j 14:00	27°M00'53	-2°-42'-3	conjunction	-2660 Dec 21 j 11:53	10°Z09'54	-6°-28'-48
minimum elong	-2668 Dec 08 j 13:55	27°M00'52	2°42'08	minimum elong	-2660 Dec 21 j 11:41	10°Z09'53	6°28'53
max. Earth dist.	-2668 Dec 11 j 12:57	27°M06'38	36.02776 AU	max. Earth dist.	-2660 Dec 24 j 15:34	10°Z15'41	38.05323 AU
retrograde	-2667 Mar 22 j 09:10	29°M08'18		retrograde	-2659 Apr 04 j 06:14	12°Z09'58	
min. Earth dist.	-2667 Jun 09 j 12:26	27°M58'11	34.15635 AU	min. Earth dist.	-2659 Jun 22 j 19:45	11°Z02'19	36.19462 AU
opposition	-2667 Jun 12 j 11:33	27°M53'59	-3°-7'-57	opposition	-2659 Jun 26 j 00:52	10°Z57'56	-7°-4'-1
direct	-2667 Aug 31 j 20:49	26°M40'52		direct	-2659 Sep 14 j 12:31	9°Z47'23	
conjunction	-2667 Dec 10 j 12:27	28°M44'04	-3°-12'-30	conjunction	-2659 Dec 23 j 06:28	11°Z42'45	-6°-54'-20
minimum elong	-2667 Dec 10 j 12:21	28°M44'04	3°12'35	minimum elong	-2659 Dec 23 j 06:16	11°Z42'44	6°54'25
max. Earth dist.	-2667 Dec 13 j 11:25	28°M49'47	36.28086 AU	max. Earth dist.	-2659 Dec 26 j 11:04	11°Z48'33	38.30818 AU
	-2666 Jan 21 j 18:48	0°Z		retrograde	-2658 Apr 06 j 02:07	13°Z41'59	
retrograde	-2666 Mar 24 j 08:34	0°Z50'32		min. Earth dist.	-2658 Jun 24 j 16:06	12°Z34'36	36.45191 AU
	-2666 May 28 j 14:42	30°RM		opposition	-2658 Jun 27 j 21:13	12°Z30'14	-7°-30'-27
min. Earth dist.	-2666 Jun 11 j 11:16	29°M40'52	34.41078 AU	direct	-2658 Sep 16 j 07:02	11°Z20'01	
opposition	-2666 Jun 14 j 12:07	29°M36'35	-3°-39'-47				
direct	-2666 Sep 02 j 20:26	28°M23'51		conjunction	-2658 Dec 25 j 00:36	13°Z14'30	-7°-19'-14
	-2666 Nov 28 j 17:52	0°Z		minimum elong	-2658 Dec 25 j 00:24	13°Z14'29	7°19'19
				max. Earth dist.	-2658 Dec 28 j 06:16	13°Z20'21	38.56388 AU
conjunction	-2666 Dec 12 j 10:20	0°Z26'01	-3°-42'-22	retrograde	-2657 Apr 07 j 20:15	15°Z12'57	
minimum elong	-2666 Dec 12 j 10:13	0°Z26'00	3°42'27	min. Earth dist.	-2657 Jun 26 j 11:04	14°Z05'53	36.70963 AU



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 16

Attention, astronomical year style is used: The year -2657 in astronomical counting style is the year 2658 BCE in historical counting style.

opposition	-2657 Jun 29 j 16:59	14°♂01'30	-7°-56'-12	conjunction	-2648 Jan 07 j 04:46	26°♂18'25	-10°-35'-35
direct	-2657 Sep 18 j 03:46	12°♂51'36		minimum elong	-2648 Jan 07 j 04:33	26°♂18'24	10°35'41
				max. Earth dist.	-2648 Jan 10 j 11:27	26°♂24'01	40.81146 AU
conjunction	-2657 Dec 26 j 18:21	14°♂45'16	-7°-43'-30	retrograde	-2648 Apr 19 j 22:31	28°♂10'24	
minimum elong	-2657 Dec 26 j 18:09	14°♂45'15	7°43'35	min. Earth dist.	-2648 Jul 09 j 02:56	27°♂05'29	38.96895 AU
max. Earth dist.	-2657 Dec 29 j 23:45	14°♂51'03	38.81976 AU	opposition	-2648 Jul 12 j 08:07	27°♂01'18	-11°-18'-11
retrograde	-2656 Apr 08 j 15:31	16°♂42'56		direct	-2648 Sep 30 j 21:56	25°♂53'53	
min. Earth dist.	-2656 Jun 27 j 05:45	15°♂36'11	36.96751 AU				
opposition	-2656 Jun 30 j 12:23	15°♂31'47	-8°-21'-15	conjunction	-2647 Jan 07 j 19:30	27°♂40'53	-10°-54'-25
direct	-2656 Sep 18 j 22:24	14°♂22'12		minimum elong	-2647 Jan 07 j 19:18	27°♂40'52	10°54'30
				max. Earth dist.	-2647 Jan 11 j 01:38	27°♂46'25	41.05235 AU
conjunction	-2656 Dec 27 j 11:53	16°♂15'04	-8°-7'-7	retrograde	-2647 Apr 21 j 12:09	29°♂32'13	
minimum elong	-2656 Dec 27 j 11:41	16°♂15'03	8°07'13	min. Earth dist.	-2647 Jul 10 j 17:22	28°♂27'34	39.21153 AU
max. Earth dist.	-2656 Dec 30 j 18:40	16°♂20'56	39.07534 AU	opposition	-2647 Jul 13 j 23:41	28°♂23'20	-11°-37'-26
retrograde	-2655 Apr 10 j 07:40	18°♂12'00		direct	-2647 Oct 02 j 14:45	27°♂16'10	
min. Earth dist.	-2655 Jun 29 j 01:20	17°♂05'30	37.22463 AU				
opposition	-2655 Jul 02 j 07:18	17°♂01'09	-8°-45'-38	conjunction	-2646 Jan 09 j 09:50	29°♂02'30	-11°-12'-38
direct	-2655 Sep 20 j 18:53	15°♂51'53		minimum elong	-2646 Jan 09 j 09:37	29°♂02'29	11°12'44
				max. Earth dist.	-2646 Jan 12 j 16:23	29°♂08'01	41.29230 AU
conjunction	-2655 Dec 29 j 05:00	17°♂43'59	-8°-30'-8		-2646 Feb 14 j 06:11	0°♂	
minimum elong	-2655 Dec 29 j 04:48	17°♂43'58	8°30'14	retrograde	-2646 Apr 23 j 04:21	0°♂53'12	
max. Earth dist.	-2654 Jan 01 j 10:59	17°♂49'45	39.32983 AU		-2646 Jul 03 j 13:49	30°♂	
retrograde	-2654 Apr 12 j 00:06	19°♂40'11		min. Earth dist.	-2646 Jul 12 j 09:19	29°♂48'45	39.45332 AU
min. Earth dist.	-2654 Jun 30 j 18:42	18°♂34'01	37.48043 AU	opposition	-2646 Jul 15 j 15:00	29°♂44'33	-11°-56'-3
opposition	-2654 Jul 04 j 01:40	18°♂29'38	-9°-9'-21	direct	-2646 Oct 04 j 04:32	28°♂37'38	
direct	-2654 Sep 22 j 13:48	17°♂20'41			-2646 Dec 27 j 23:38	0°♂	
conjunction	-2654 Dec 30 j 21:53	19°♂12'01	-8°-52'-32	conjunction	-2645 Jan 10 j 23:59	0°♂23'20	-11°-30'-17
minimum elong	-2654 Dec 30 j 21:40	19°♂12'00	8°52'37	minimum elong	-2645 Jan 10 j 23:48	0°♂23'19	11°30'22
max. Earth dist.	-2653 Jan 03 j 04:36	19°♂17'48	39.58254 AU	max. Earth dist.	-2645 Jan 14 j 06:58	0°♂28'52	41.53156 AU
retrograde	-2653 Apr 13 j 16:46	21°♂07'31		retrograde	-2645 Apr 24 j 18:38	2°♂13'25	
min. Earth dist.	-2653 Jul 02 j 13:59	20°♂01'33	37.73427 AU	min. Earth dist.	-2645 Jul 13 j 23:53	1°♂09'13	39.69410 AU
opposition	-2653 Jul 05 j 19:54	19°♂57'14	-9°-32'-25	opposition	-2645 Jul 17 j 05:55	1°♂05'02	-12°-14'-3
direct	-2653 Sep 24 j 08:08	18°♂48'36			-2645 Sep 24 j 12:59	30°♂	
				direct	-2645 Oct 05 j 18:51	29°♂58'22	
conjunction	-2652 Jan 01 j 14:23	20°♂39'11	-9°-14'-20		-2645 Oct 17 j 00:10	0°♂	
minimum elong	-2652 Jan 01 j 14:11	20°♂39'10	9°14'25				
max. Earth dist.	-2652 Jan 04 j 20:42	20°♂44'54	39.83309 AU	conjunction	-2644 Jan 12 j 13:40	1°♂43'27	-11°-47'-21
retrograde	-2652 Apr 14 j 10:19	22°♂33'58		minimum elong	-2644 Jan 12 j 13:27	1°♂43'26	11°47'26
min. Earth dist.	-2652 Jul 03 j 07:09	21°♂28'16	37.98558 AU	max. Earth dist.	-2644 Jan 15 j 19:55	1°♂48'53	41.76965 AU
opposition	-2652 Jul 06 j 13:34	21°♂23'57	-9°-54'-50	retrograde	-2644 Apr 25 j 10:19	3°♂32'56	
direct	-2652 Sep 25 j 00:46	20°♂15'34		min. Earth dist.	-2644 Jul 14 j 14:32	2°♂28'58	39.93364 AU
				opposition	-2644 Jul 17 j 20:38	2°♂24'48	-12°-31'-26
conjunction	-2651 Jan 02 j 06:35	22°♂05'25	-9°-35'-32	direct	-2644 Oct 06 j 08:08	1°♂18'23	
minimum elong	-2651 Jan 02 j 06:22	22°♂05'24	9°35'36				
max. Earth dist.	-2651 Jan 05 j 12:24	22°♂11'03	40.08093 AU	conjunction	-2643 Jan 13 j 03:22	3°♂02'53	-12°-3'-51
retrograde	-2651 Apr 16 j 03:42	23°♂59'30		minimum elong	-2643 Jan 13 j 03:11	3°♂02'52	12°03'56
min. Earth dist.	-2651 Jul 05 j 00:59	22°♂53'59	38.23438 AU	max. Earth dist.	-2643 Jan 16 j 10:37	3°♂08'21	42.00617 AU
opposition	-2651 Jul 08 j 06:48	22°♂49'43	-10°-16'-37	retrograde	-2643 Apr 26 j 22:11	4°♂51'47	
direct	-2651 Sep 26 j 17:01	21°♂41'36		min. Earth dist.	-2643 Jul 16 j 05:47	3°♂48'00	40.17116 AU
				opposition	-2643 Jul 19 j 10:50	3°♂43'53	-12°-48'-14
conjunction	-2650 Jan 03 j 22:29	23°♂30'43	-9°-56'-9	direct	-2643 Oct 08 j 00:05	2°♂37'44	
minimum elong	-2650 Jan 03 j 22:16	23°♂30'42	9°56'14				
max. Earth dist.	-2650 Jan 07 j 04:59	23°♂36'22	40.32634 AU	conjunction	-2642 Jan 14 j 16:43	4°♂21'40	-12°-19'-48
retrograde	-2650 Apr 17 j 18:35	25°♂24'04		minimum elong	-2642 Jan 14 j 16:31	4°♂21'39	12°19'53
min. Earth dist.	-2650 Jul 06 j 18:09	24°♂18'46	38.48075 AU	max. Earth dist.	-2642 Jan 17 j 22:40	4°♂27'02	42.24049 AU
opposition	-2650 Jul 09 j 23:36	24°♂14'32	-10°-37'-47	retrograde	-2642 Apr 28 j 11:20	6°♂10'00	
direct	-2650 Sep 28 j 11:13	23°♂06'39		min. Earth dist.	-2642 Jul 17 j 19:13	5°♂06'28	40.40619 AU
				opposition	-2642 Jul 21 j 00:50	5°♂02'21	-13°-4'-27
conjunction	-2649 Jan 05 j 13:40	24°♂55'03	-10°-16'-10	direct	-2642 Oct 09 j 14:12	3°♂56'26	
minimum elong	-2649 Jan 05 j 13:28	24°♂55'02	10°16'15				
max. Earth dist.	-2649 Jan 08 j 19:12	25°♂00'36	40.56963 AU	conjunction	-2641 Jan 16 j 05:46	5°♂39'48	-12°-35'-13
retrograde	-2649 Apr 19 j 10:16	26°♂47'42		minimum elong	-2641 Jan 16 j 05:35	5°♂39'47	12°35'18
min. Earth dist.	-2649 Jul 08 j 09:53	25°♂42'38	38.72548 AU	max. Earth dist.	-2641 Jan 19 j 11:56	5°♂45'09	42.47184 AU
opposition	-2649 Jul 11 j 16:06	25°♂38'23	-10°-58'-18	retrograde	-2641 Apr 29 j 23:07	7°♂27'36	
direct	-2649 Sep 30 j 03:57	24°♂30'44		min. Earth dist.	-2641 Jul 19 j 10:45	6°♂24'12	40.63797 AU
				opposition	-2641 Jul 22 j 14:44	6°♂20'11	-13°-20'-8



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 17

Attention, astronomical year style is used: The year -2641 in astronomical counting style is the year 2642 BCE in historical counting style.

direct	-2641 Oct 11 j 05:34	5°♁14'30		minimum elong	-2632 Jan 27 j 17:05	16°♁52'41	14°31'33
				max. Earth dist.	-2632 Jan 30 j 18:36	16°♁57'30	44.40721 AU
conjunction	-2640 Jan 17 j 18:50	6°♁57'18	-12°-50'-7	retrograde	-2632 May 10 j 12:59	18°♁35'52	
minimum elong	-2640 Jan 17 j 18:38	6°♁57'17	12°50'12	min. Earth dist.	-2632 Jul 30 j 05:03	17°♁33'55	42.57708 AU
max. Earth dist.	-2640 Jan 21 j 00:19	7°♁02'35	42.69981 AU	opposition	-2632 Aug 02 j 05:09	17°♁30'13	-15°-17'-38
retrograde	-2640 Apr 30 j 12:20	8°♁44'33		direct	-2632 Oct 21 j 17:55	16°♁26'16	
min. Earth dist.	-2640 Jul 20 j 00:08	7°♁41'21	40.86595 AU				
opposition	-2640 Jul 23 j 04:05	7°♁37'21	-13°-35'-16	conjunction	-2631 Jan 28 j 04:08	18°♁04'35	-14°-41'-57
direct	-2640 Oct 11 j 19:07	6°♁31'52		minimum elong	-2631 Jan 28 j 04:00	18°♁04'34	14°42'03
				max. Earth dist.	-2631 Jan 31 j 05:59	18°♁09'23	44.60995 AU
conjunction	-2639 Jan 18 j 07:33	8°♁14'07	-13°-4'-31	retrograde	-2631 May 11 j 20:50	19°♁47'19	
minimum elong	-2639 Jan 18 j 07:23	8°♁14'07	13°04'37	min. Earth dist.	-2631 Jul 31 j 17:42	18°♁45'30	42.77995 AU
max. Earth dist.	-2639 Jan 21 j 11:51	8°♁19'17	42.92378 AU	opposition	-2631 Aug 03 j 16:11	18°♁41'53	-15°-28'-8
retrograde	-2639 May 02 j 03:38	10°♁00'49		direct	-2631 Oct 23 j 07:10	17°♁38'09	
min. Earth dist.	-2639 Jul 21 j 14:20	8°♁57'45	41.08998 AU				
opposition	-2639 Jul 24 j 17:21	8°♁53'49	-13°-49'-53	conjunction	-2630 Jan 29 j 14:45	19°♁16'02	-14°-51'-58
direct	-2639 Oct 13 j 05:49	7°♁48'32		minimum elong	-2630 Jan 29 j 14:38	19°♁16'02	14°52'03
				max. Earth dist.	-2630 Feb 01 j 15:19	19°♁20'46	44.80971 AU
conjunction	-2638 Jan 19 j 20:03	9°♁30'14	-13°-18'-26	retrograde	-2630 May 13 j 05:38	20°♁58'22	
minimum elong	-2638 Jan 19 j 19:52	9°♁30'13	13°18'31	min. Earth dist.	-2630 Aug 02 j 04:12	19°♁56'46	42.97946 AU
max. Earth dist.	-2638 Jan 23 j 00:33	9°♁35'23	43.14388 AU	opposition	-2630 Aug 05 j 02:53	19°♁53'09	-15°-38'-11
retrograde	-2638 May 03 j 14:39	11°♁16'22		direct	-2630 Oct 24 j 19:52	18°♁49'37	
min. Earth dist.	-2638 Jul 23 j 04:07	10°♁13'25	41.31009 AU				
opposition	-2638 Jul 26 j 06:08	10°♁09'33	-14°-3'-59	conjunction	-2629 Jan 31 j 01:16	20°♁27'07	-15°-1'-33
direct	-2638 Oct 14 j 20:05	9°♁04'27		minimum elong	-2629 Jan 31 j 01:08	20°♁27'06	15°01'39
				max. Earth dist.	-2629 Feb 03 j 01:11	20°♁31'46	45.00576 AU
conjunction	-2637 Jan 21 j 08:09	10°♁45'36	-13°-31'-51	retrograde	-2629 May 14 j 17:17	22°♁09'02	
minimum elong	-2637 Jan 21 j 07:59	10°♁45'35	13°31'57	min. Earth dist.	-2629 Aug 03 j 16:41	21°♁07'31	43.17504 AU
max. Earth dist.	-2637 Jan 24 j 11:07	10°♁50'37	43.36049 AU	opposition	-2629 Aug 06 j 13:35	21°♁04'01	-15°-47'-47
retrograde	-2637 May 05 j 02:03	12°♁31'11		direct	-2629 Oct 26 j 06:23	20°♁00'41	
min. Earth dist.	-2637 Jul 24 j 16:28	11°♁28'25	41.52710 AU				
opposition	-2637 Jul 27 j 18:40	11°♁24'33	-14°-17'-34	conjunction	-2628 Feb 01 j 11:47	21°♁37'46	-15°-10'-43
direct	-2637 Oct 16 j 09:03	10°♁19'37		minimum elong	-2628 Feb 01 j 11:41	21°♁37'45	15°10'48
				max. Earth dist.	-2628 Feb 04 j 11:10	21°♁42'21	45.19764 AU
conjunction	-2636 Jan 22 j 20:02	12°♁00'15	-13°-44'-46	retrograde	-2628 May 15 j 03:42	23°♁19'16	
minimum elong	-2636 Jan 22 j 19:51	12°♁00'14	13°44'51	min. Earth dist.	-2628 Aug 04 j 03:42	22°♁17'54	43.36592 AU
max. Earth dist.	-2636 Jan 25 j 23:34	12°♁05'17	43.57415 AU	opposition	-2628 Aug 06 j 23:56	22°♁14'26	-15°-56'-57
retrograde	-2636 May 05 j 11:47	13°♁45'19		direct	-2628 Oct 26 j 16:52	21°♁11'16	
min. Earth dist.	-2636 Jul 25 j 06:13	12°♁42'38	41.74138 AU				
opposition	-2636 Jul 28 j 06:59	12°♁38'51	-14°-30'-37	conjunction	-2627 Feb 01 j 22:03	22°♁47'57	-15°-19'-29
direct	-2636 Oct 16 j 23:28	11°♁34'06		minimum elong	-2627 Feb 01 j 21:56	22°♁47'56	15°19'33
				max. Earth dist.	-2627 Feb 04 j 19:21	22°♁52'23	45.38470 AU
conjunction	-2635 Jan 23 j 07:46	13°♁14'13	-13°-57'-11	retrograde	-2627 May 16 j 16:30	24°♁29'02	
minimum elong	-2635 Jan 23 j 07:37	13°♁14'12	13°57'17	min. Earth dist.	-2627 Aug 05 j 14:49	23°♁27'46	43.55202 AU
max. Earth dist.	-2635 Jan 26 j 10:31	13°♁19'11	43.78549 AU	opposition	-2627 Aug 08 j 10:04	23°♁24'21	-16°-5'-42
retrograde	-2635 May 06 j 22:34	14°♁58'46		direct	-2627 Oct 28 j 00:30	22°♁21'20	
min. Earth dist.	-2635 Jul 26 j 17:24	13°♁56'19	41.95339 AU				
opposition	-2635 Jul 29 j 18:43	13°♁52'30	-14°-43'-8	conjunction	-2626 Feb 03 j 08:11	23°♁57'37	-15°-27'-50
direct	-2635 Oct 18 j 12:11	12°♁47'56		minimum elong	-2626 Feb 03 j 08:06	23°♁57'36	15°27'55
				max. Earth dist.	-2626 Feb 06 j 05:35	24°♁02'02	45.56701 AU
conjunction	-2634 Jan 24 j 19:07	14°♁27'34	-14°-9'-7	retrograde	-2626 May 18 j 01:29	25°♁38'15	
minimum elong	-2634 Jan 24 j 18:58	14°♁27'34	14°09'11	min. Earth dist.	-2626 Aug 07 j 02:31	24°♁37'02	43.73334 AU
max. Earth dist.	-2634 Jan 27 j 21:21	14°♁32'28	43.99467 AU	opposition	-2626 Aug 09 j 20:03	24°♁33'43	-16°-14'-3
retrograde	-2634 May 08 j 11:40	16°♁11'39		direct	-2626 Oct 29 j 11:18	23°♁30'50	
min. Earth dist.	-2634 Jul 28 j 06:08	15°♁09'19	42.16344 AU				
opposition	-2634 Jul 31 j 06:31	15°♁05'34	-14°-55'-9	conjunction	-2625 Feb 04 j 17:51	25°♁06'41	-15°-35'-48
direct	-2634 Oct 19 j 22:37	14°♁01'13		minimum elong	-2625 Feb 04 j 17:45	25°♁06'41	15°35'53
				max. Earth dist.	-2625 Feb 07 j 13:32	25°♁11'00	45.74498 AU
conjunction	-2633 Jan 26 j 06:16	15°♁40'23	-14°-20'-32	retrograde	-2625 May 19 j 09:37	26°♁46'54	
minimum elong	-2633 Jan 26 j 06:07	15°♁40'22	14°20'38	min. Earth dist.	-2625 Aug 08 j 12:04	25°♁45'49	43.91057 AU
max. Earth dist.	-2633 Jan 29 j 09:02	15°♁45'18	44.20201 AU	opposition	-2625 Aug 11 j 05:45	25°♁42'30	-16°-21'-59
retrograde	-2633 May 09 j 23:53	17°♁24'00		direct	-2625 Oct 30 j 21:42	24°♁39'44	
min. Earth dist.	-2633 Jul 29 j 17:56	16°♁21'50	42.37135 AU				
opposition	-2633 Aug 01 j 17:58	16°♁18'08	-15°-6'-38	conjunction	-2624 Feb 06 j 03:28	26°♁15'11	-15°-43'-22
direct	-2633 Oct 21 j 08:47	15°♁13'58		minimum elong	-2624 Feb 06 j 03:24	26°♁15'10	15°43'27
				max. Earth dist.	-2624 Feb 08 j 22:44	26°♁19'26	45.91906 AU
conjunction	-2632 Jan 27 j 17:13	16°♁52'42	-14°-31'-29	retrograde	-2624 May 19 j 16:41	27°♁54'59	



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 18

Attention, astronomical year style is used: The year -2624 in astronomical counting style is the year 2625 BCE in historical counting style.

min. Earth dist.	-2624 Aug 08 j 23:19	26° $\overline{53}$ '55	44.08427 AU	max. Earth dist.	-2616 Feb 17 j 16:29	5° $\approx$ 10'21	47.20847 AU
opposition	-2624 Aug 11 j 15:12	26° $\overline{50}$ '42	-16°-29'-30	retrograde	-2616 May 28 j 16:44	6° $\approx$ 43'33	
direct	-2624 Oct 31 j 10:01	25° $\overline{48}$ '02		min. Earth dist.	-2616 Aug 18 j 02:40	5° $\approx$ 43'21	45.36813 AU
				opposition	-2616 Aug 20 j 11:56	5° $\approx$ 40'31	-17°-14'-41
conjunction	-2623 Feb 06 j 12:59	27° $\overline{23}$ '06	-15°-50'-31	direct	-2616 Nov 09 j 05:50	4° $\approx$ 39'00	
minimum elong	-2623 Feb 06 j 12:54	27° $\overline{23}$ '05	15°50'36				
max. Earth dist.	-2623 Feb 09 j 07:52	27° $\overline{27}$ '19	46.09005 AU	conjunction	-2615 Feb 15 j 11:07	6° $\approx$ 11'31	-16°-33'-33
retrograde	-2623 May 21 j 01:38	29° $\overline{02}$ '29		minimum elong	-2615 Feb 15 j 11:07	6° $\approx$ 11'31	16°33'37
min. Earth dist.	-2623 Aug 10 j 08:32	28° $\overline{01}$ '33	44.25492 AU	max. Earth dist.	-2615 Feb 17 j 22:36	6° $\approx$ 15'09	47.35300 AU
opposition	-2623 Aug 13 j 00:20	27° $\overline{58}$ '20	-16°-36'-35	retrograde	-2615 May 30 j 02:05	7° $\approx$ 48'12	
direct	-2623 Nov 01 j 20:13	26° $\overline{55}$ '48		min. Earth dist.	-2615 Aug 19 j 11:00	6° $\approx$ 48'07	45.51084 AU
				opposition	-2615 Aug 21 j 19:52	6° $\approx$ 45'18	-17°-18'-39
conjunction	-2622 Feb 07 j 22:02	28° $\overline{30}$ '28	-15°-57'-16	direct	-2615 Nov 10 j 12:27	5° $\approx$ 43'54	
minimum elong	-2622 Feb 07 j 21:58	28° $\overline{30}$ '28	15°57'21				
max. Earth dist.	-2622 Feb 10 j 15:36	28° $\overline{34}$ '35	46.25820 AU	conjunction	-2614 Feb 16 j 19:18	7° $\approx$ 16'08	-16°-37'-20
	-2622 Apr 23 j 07:01	0° $\approx$		minimum elong	-2614 Feb 16 j 19:17	7° $\approx$ 16'08	16°37'25
retrograde	-2622 May 22 j 13:05	0° $\approx$ 09'28		max. Earth dist.	-2614 Feb 19 j 06:09	7° $\approx$ 19'44	47.49245 AU
	-2622 Jun 20 j 23:42	30° $\overline{R}$ $\overline{3}$		retrograde	-2614 May 31 j 06:37	8° $\approx$ 52'31	
min. Earth dist.	-2622 Aug 11 j 18:15	29° $\overline{08}$ '38	44.42300 AU	min. Earth dist.	-2614 Aug 20 j 21:03	7° $\approx$ 52'26	45.64854 AU
opposition	-2622 Aug 14 j 09:25	29° $\overline{05}$ '28	-16°-43'-14	opposition	-2614 Aug 23 j 03:43	7° $\approx$ 49'44	-17°-22'-18
direct	-2622 Nov 03 j 02:52	28° $\overline{03}$ '03		direct	-2614 Nov 11 j 23:24	6° $\approx$ 48'27	
conjunction	-2621 Feb 09 j 07:10	29° $\overline{37}$ '22	-16°-3'-36	conjunction	-2613 Feb 18 j 03:28	8° $\approx$ 20'23	-16°-40'-48
minimum elong	-2621 Feb 09 j 07:07	29° $\overline{37}$ '22	16°03'40	minimum elong	-2613 Feb 18 j 03:29	8° $\approx$ 20'23	16°40'52
max. Earth dist.	-2621 Feb 12 j 01:09	29° $\overline{41}$ '30	46.42396 AU	max. Earth dist.	-2613 Feb 20 j 13:13	8° $\approx$ 23'55	47.62738 AU
	-2621 Feb 24 j 12:00	0° $\approx$		retrograde	-2613 Jun 01 j 12:32	9° $\approx$ 56'27	
retrograde	-2621 May 23 j 21:19	1° $\approx$ 15'59		min. Earth dist.	-2613 Aug 22 j 04:45	8° $\approx$ 56'28	45.78182 AU
min. Earth dist.	-2621 Aug 13 j 04:08	0° $\approx$ 15'14	44.58852 AU	opposition	-2613 Aug 24 j 11:11	8° $\approx$ 53'47	-17°-25'-36
opposition	-2621 Aug 15 j 18:15	0° $\approx$ 12'08	-16°-49'-28	direct	-2613 Nov 13 j 09:24	7° $\approx$ 52'36	
	-2621 Aug 25 j 21:35	30° $\overline{R}$ $\overline{3}$					
direct	-2621 Nov 04 j 12:17	29° $\overline{09}$ '52		conjunction	-2612 Feb 19 j 11:20	9° $\approx$ 24'15	-16°-43'-55
	-2620 Jan 11 j 05:24	0° $\approx$		minimum elong	-2612 Feb 19 j 11:20	9° $\approx$ 24'15	16°44'00
				max. Earth dist.	-2612 Feb 21 j 19:31	9° $\approx$ 27'40	47.75810 AU
conjunction	-2620 Feb 10 j 16:02	0° $\approx$ 43'51	-16°-9'-32	retrograde	-2612 Jun 01 j 22:24	11° $\approx$ 00'00	
minimum elong	-2620 Feb 10 j 15:59	0° $\approx$ 43'51	16°09'37	min. Earth dist.	-2612 Aug 22 j 13:41	10° $\approx$ 00'03	45.91129 AU
max. Earth dist.	-2620 Feb 13 j 08:30	0° $\approx$ 47'52	46.58731 AU	opposition	-2612 Aug 24 j 18:40	9° $\approx$ 57'27	-17°-28'-33
retrograde	-2620 May 24 j 05:25	2° $\approx$ 22'06		direct	-2612 Nov 13 j 15:40	8° $\approx$ 56'21	
min. Earth dist.	-2620 Aug 13 j 12:39	1° $\approx$ 21'31	44.75149 AU				
opposition	-2620 Aug 16 j 02:54	1° $\approx$ 18'24	-16°-55'-16	conjunction	-2611 Feb 19 j 19:15	10° $\approx$ 27'43	-16°-46'-42
direct	-2620 Nov 04 j 21:00	0° $\approx$ 16'17		minimum elong	-2611 Feb 19 j 19:17	10° $\approx$ 27'43	16°46'47
				max. Earth dist.	-2611 Feb 22 j 03:30	10° $\approx$ 31'07	47.88531 AU
conjunction	-2619 Feb 11 j 00:52	1° $\approx$ 49'57	-16°-15'-4	retrograde	-2611 Jun 03 j 05:50	12° $\approx$ 03'10	
minimum elong	-2619 Feb 11 j 00:49	1° $\approx$ 49'57	16°15'08	min. Earth dist.	-2611 Aug 23 j 21:41	11° $\approx$ 03'17	46.03732 AU
max. Earth dist.	-2619 Feb 13 j 17:08	1° $\approx$ 53'57	46.74785 AU	opposition	-2611 Aug 26 j 01:44	11° $\approx$ 00'43	-17°-31'-9
retrograde	-2619 May 25 j 12:39	3° $\approx$ 27'53		direct	-2611 Nov 14 j 23:09	9° $\approx$ 59'43	
min. Earth dist.	-2619 Aug 14 j 22:55	2° $\approx$ 27'22	44.91147 AU				
opposition	-2619 Aug 17 j 11:21	2° $\approx$ 24'21	-17°00'-41	conjunction	-2610 Feb 21 j 02:49	11° $\approx$ 30'49	-16°-49'-9
direct	-2619 Nov 06 j 06:52	1° $\approx$ 22'23		minimum elong	-2610 Feb 21 j 02:50	11° $\approx$ 30'49	16°49'12
				max. Earth dist.	-2610 Feb 23 j 09:14	11° $\approx$ 34'06	48.00951 AU
conjunction	-2618 Feb 12 j 09:36	2° $\approx$ 55'45	-16°-20'-13	retrograde	-2610 Jun 04 j 14:32	13° $\approx$ 05'58	
minimum elong	-2618 Feb 12 j 09:33	2° $\approx$ 55'45	16°20'18	min. Earth dist.	-2610 Aug 25 j 04:55	12° $\approx$ 06'11	46.16056 AU
max. Earth dist.	-2618 Feb 15 j 01:09	2° $\approx$ 59'42	46.90537 AU	opposition	-2610 Aug 27 j 08:50	12° $\approx$ 03'39	-17°-33'-23
retrograde	-2618 May 26 j 20:28	4° $\approx$ 33'22		direct	-2610 Nov 16 j 04:06	11° $\approx$ 02'44	
min. Earth dist.	-2618 Aug 16 j 07:20	3° $\approx$ 33'01	45.06797 AU				
opposition	-2618 Aug 18 j 19:38	3° $\approx$ 30'00	-17°-5'-43	conjunction	-2609 Feb 22 j 10:15	12° $\approx$ 33'36	-16°-51'-14
direct	-2618 Nov 07 j 16:17	2° $\approx$ 28'12		minimum elong	-2609 Feb 22 j 10:17	12° $\approx$ 33'36	16°51'18
				max. Earth dist.	-2609 Feb 24 j 16:46	12° $\approx$ 36'52	48.13094 AU
conjunction	-2617 Feb 13 j 18:00	4° $\approx$ 01'17	-16°-25'00	retrograde	-2609 Jun 05 j 20:17	14° $\approx$ 08'28	
minimum elong	-2617 Feb 13 j 17:58	4° $\approx$ 01'17	16°25'04	min. Earth dist.	-2609 Aug 26 j 13:40	13° $\approx$ 08'43	46.28101 AU
max. Earth dist.	-2617 Feb 16 j 07:54	4° $\approx$ 05'06	47.05909 AU	opposition	-2609 Aug 28 j 15:54	13° $\approx$ 06'15	-17°-35'-16
retrograde	-2617 May 28 j 07:33	5° $\approx$ 38'36		direct	-2609 Nov 17 j 12:12	12° $\approx$ 05'27	
min. Earth dist.	-2617 Aug 17 j 17:06	4° $\approx$ 38'19	45.22046 AU				
opposition	-2617 Aug 20 j 03:58	4° $\approx$ 35'24	-17°-10'-22	conjunction	-2608 Feb 23 j 17:44	13° $\approx$ 36'05	-16°-52'-59
direct	-2617 Nov 08 j 22:44	3° $\approx$ 33'45		minimum elong	-2608 Feb 23 j 17:46	13° $\approx$ 36'05	16°53'02
				max. Earth dist.	-2608 Feb 25 j 23:14	13° $\approx$ 39'18	48.24979 AU
conjunction	-2616 Feb 15 j 02:41	5° $\approx$ 06'33	-16°-29'-27				
minimum elong	-2616 Feb 15 j 02:39	5° $\approx$ 06'33	16°29'31	retrograde	-2608 May 05 j 11:18	15° $\approx$	
					-2608 Jun 06 j 01:04	15° $\approx$ 10'42	



Attention, astronomical year style is used: The year -2608 in astronomical counting style is the year 2609 BCE in historical counting style.

	-2608 Jul 08 j 00:57	15°R		retrograde	-2600 Jun 14 j 10:10	23°20'34	
min. Earth dist.	-2608 Aug 26 j 20:09	14°11'04	46.39865 AU	min. Earth dist.	-2600 Sep 04 j 08:59	22°21'17	47.18886 AU
opposition	-2608 Aug 28 j 22:33	14°08'37	-17°-36'-48	opposition	-2600 Sep 06 j 01:23	22°19'20	-17°-37'-58
direct	-2608 Nov 17 j 20:57	13°07'55		direct	-2600 Nov 26 j 00:20	21°19'19	
conjunction	-2607 Feb 24 j 01:02	14°38'19	-16°-54'-24	conjunction	-2599 Mar 04 j 09:33	22°48'06	-16°-55'-5
minimum elong	-2607 Feb 24 j 01:05	14°38'19	16°54'29	minimum elong	-2599 Mar 04 j 09:37	22°48'06	16°55'09
max. Earth dist.	-2607 Feb 26 j 05:11	14°41'26	48.36569 AU	max. Earth dist.	-2599 Mar 06 j 04:25	22°50'37	49.13772 AU
	-2607 Mar 11 j 06:40	15°		retrograde	-2599 Jun 15 j 15:54	24°20'36	
retrograde	-2607 Jun 07 j 08:48	16°12'42		min. Earth dist.	-2599 Sep 05 j 16:42	23°21'17	47.26704 AU
min. Earth dist.	-2607 Aug 28 j 04:34	15°13'07	46.51326 AU	opposition	-2599 Sep 07 j 07:16	23°19'25	-17°-36'-49
opposition	-2607 Aug 30 j 05:22	15°10'44	-17°-38'00	direct	-2599 Nov 27 j 06:40	22°19'28	
	-2607 Sep 08 j 10:51	15°R					
direct	-2607 Nov 19 j 04:20	14°10'10		conjunction	-2598 Mar 05 j 16:02	23°48'04	-16°-53'-54
	-2606 Jan 27 j 04:03	15°		minimum elong	-2598 Mar 05 j 16:08	23°48'04	16°53'57
				max. Earth dist.	-2598 Mar 07 j 09:38	23°50'30	49.21447 AU
conjunction	-2606 Feb 25 j 08:16	15°40'21	-16°-55'-29	retrograde	-2598 Jun 16 j 20:08	25°20'21	
minimum elong	-2606 Feb 25 j 08:18	15°40'21	16°55'33	min. Earth dist.	-2598 Sep 06 j 22:15	24°21'08	47.34191 AU
max. Earth dist.	-2606 Feb 27 j 12:28	15°43'28	48.47837 AU	opposition	-2598 Sep 08 j 12:58	24°19'16	-17°-35'-21
retrograde	-2606 Jun 08 j 17:13	17°14'30		direct	-2598 Nov 28 j 13:32	23°19'22	
min. Earth dist.	-2606 Aug 29 j 12:06	16°15'00	46.62417 AU				
opposition	-2606 Aug 31 j 11:57	16°12'41	-17°-38'-52	conjunction	-2597 Mar 06 j 22:30	24°47'49	-16°-52'-25
direct	-2606 Nov 20 j 10:13	15°12'13		minimum elong	-2597 Mar 06 j 22:35	24°47'49	16°52'28
				max. Earth dist.	-2597 Mar 08 j 14:47	24°50'10	49.28803 AU
conjunction	-2605 Feb 26 j 15:26	16°42'12	-16°-56'-16	retrograde	-2597 Jun 18 j 01:36	26°19'55	
minimum elong	-2605 Feb 26 j 15:29	16°42'12	16°56'21	min. Earth dist.	-2597 Sep 08 j 05:41	25°20'42	47.41377 AU
max. Earth dist.	-2605 Feb 28 j 17:27	16°45'10	48.58721 AU	opposition	-2597 Sep 09 j 18:40	25°18'55	-17°-33'-35
retrograde	-2605 Jun 10 j 03:13	18°16'06		direct	-2597 Nov 29 j 20:50	24°19'06	
min. Earth dist.	-2605 Aug 30 j 19:20	17°16'42	46.73099 AU				
opposition	-2605 Sep 01 j 18:25	17°14'25	-17°-39'-25	conjunction	-2596 Mar 07 j 05:05	25°47'23	-16°-50'-38
direct	-2605 Nov 21 j 13:52	16°14'04		minimum elong	-2596 Mar 07 j 05:12	25°47'24	16°50'41
				max. Earth dist.	-2596 Mar 08 j 21:21	25°49'44	49.35871 AU
conjunction	-2604 Feb 27 j 22:45	17°43'51	-16°-56'-46	retrograde	-2596 Jun 18 j 08:18	27°19'20	
minimum elong	-2604 Feb 27 j 22:49	17°43'52	16°56'49	min. Earth dist.	-2596 Sep 08 j 11:50	26°20'11	47.48248 AU
max. Earth dist.	-2604 Mar 01 j 00:09	17°46'47	48.69147 AU	opposition	-2596 Sep 10 j 00:13	26°18'26	-17°-31'-31
retrograde	-2604 Jun 10 j 08:29	19°17'32		direct	-2596 Nov 30 j 02:49	25°18'41	
min. Earth dist.	-2604 Aug 31 j 04:05	18°18'08	46.83280 AU				
opposition	-2604 Sep 02 j 00:55	18°15'57	-17°-39'-42	conjunction	-2595 Mar 08 j 11:24	26°46'51	-16°-48'-33
direct	-2604 Nov 21 j 21:35	17°15'42		minimum elong	-2595 Mar 08 j 11:30	26°46'51	16°48'36
				max. Earth dist.	-2595 Mar 10 j 01:31	26°49'04	49.42625 AU
conjunction	-2603 Feb 28 j 06:00	18°45'17	-16°-56'-59	retrograde	-2595 Jun 19 j 17:57	28°18'38	
minimum elong	-2603 Feb 28 j 06:03	18°45'17	16°57'02	min. Earth dist.	-2595 Sep 09 j 17:57	27°19'33	47.54802 AU
max. Earth dist.	-2603 Mar 02 j 05:41	18°48'07	48.79067 AU	opposition	-2595 Sep 11 j 05:39	27°17'50	-17°-29'-9
retrograde	-2603 Jun 11 j 12:36	20°18'43		direct	-2595 Dec 01 j 04:42	26°18'10	
min. Earth dist.	-2603 Sep 01 j 10:47	19°19'24	46.92929 AU				
opposition	-2603 Sep 03 j 07:07	19°17'15	-17°-39'-41	conjunction	-2594 Mar 09 j 17:47	27°46'14	-16°-46'-11
direct	-2603 Nov 23 j 06:18	18°17'03		minimum elong	-2594 Mar 09 j 17:54	27°46'14	16°46'15
				max. Earth dist.	-2594 Mar 11 j 07:42	27°48'26	49.49040 AU
conjunction	-2602 Mar 01 j 13:01	19°46'27	-16°-56'-55	retrograde	-2594 Jun 20 j 23:44	29°17'52	
minimum elong	-2602 Mar 01 j 13:05	19°46'27	16°56'58	min. Earth dist.	-2594 Sep 11 j 01:20	28°18'48	47.60983 AU
max. Earth dist.	-2602 Mar 03 j 10:50	19°49'09	48.88450 AU	opposition	-2594 Sep 12 j 11:07	28°17'11	-17°-26'-29
retrograde	-2602 Jun 12 j 19:22	21°19'39		direct	-2594 Dec 02 j 10:02	27°17'36	
min. Earth dist.	-2602 Sep 02 j 19:08	20°20'18	47.02055 AU				
opposition	-2602 Sep 04 j 13:27	20°18'15	-17°-39'-24	conjunction	-2593 Mar 11 j 00:03	28°45'33	-16°-43'-33
direct	-2602 Nov 24 j 13:27	19°18'08		minimum elong	-2593 Mar 11 j 00:10	28°45'34	16°43'36
				max. Earth dist.	-2593 Mar 12 j 12:28	28°47'40	49.55073 AU
conjunction	-2601 Mar 02 j 19:57	20°47'18	-16°-56'-35		-2593 May 12 j 11:00	0°	
minimum elong	-2601 Mar 02 j 20:01	20°47'19	16°56'39	retrograde	-2593 Jun 22 j 03:23	0°17'03	
max. Earth dist.	-2601 Mar 04 j 17:19	20°49'59	48.97334 AU		-2593 Aug 02 j 05:31	30°R	
retrograde	-2601 Jun 14 j 01:22	22°20'16		min. Earth dist.	-2593 Sep 12 j 07:01	29°18'04	47.66738 AU
min. Earth dist.	-2601 Sep 04 j 02:15	21°20'57	47.10682 AU	opposition	-2593 Sep 13 j 16:25	29°16'28	-17°-23'-34
opposition	-2601 Sep 05 j 19:31	21°18'57	-17°-38'-50	direct	-2593 Dec 03 j 17:24	28°16'58	
direct	-2601 Nov 25 j 20:37	20°18'53					
				conjunction	-2592 Mar 11 j 06:26	29°44'49	-16°-40'-40
conjunction	-2600 Mar 03 j 02:46	21°47'51	-16°-55'-59	minimum elong	-2592 Mar 11 j 06:33	29°44'50	16°40'43
minimum elong	-2600 Mar 03 j 02:52	21°47'51	16°56'02	max. Earth dist.	-2592 Mar 12 j 17:01	29°46'49	49.60631 AU
max. Earth dist.	-2600 Mar 04 j 21:53	21°50'23	49.05756 AU		-2592 Mar 22 j 05:59	0°	



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 20

Attention, astronomical year style is used: The year -2592 in astronomical counting style is the year 2593 BCE in historical counting style.

retrograde	-2592 Jun 22 j 08:16	1° <del>16</del> '10		opposition	-2584 Sep 21 j 13:21	8° <del>02</del> '29	-16°-45'-43
opposition	-2592 Sep 13 j 21:44	0° <del>15</del> '41	-17°-20'-23	min. Earth dist.	-2584 Sep 20 j 15:36	8° <del>03</del> '31	47.97352 AU
min. Earth dist.	-2592 Sep 12 j 14:39	0° <del>17</del> '10	47.71998 AU	direct	-2584 Dec 11 j 17:45	7° <del>03</del> '12	
	-2592 Sep 27 j 17:14	30° <del>00</del> '00					
direct	-2592 Dec 04 j 00:30	29° <del>16</del> '15		conjunction	-2583 Mar 20 j 12:54	8° <del>30</del> '07	-16°-3'-24
	-2591 Feb 07 j 08:47	0° <del>00</del> '00		minimum elong	-2583 Mar 20 j 13:04	8° <del>30</del> '07	16°03'27
				max. Earth dist.	-2583 Mar 21 j 12:37	8° <del>31</del> '28	49.90070 AU
conjunction	-2591 Mar 12 j 12:54	0° <del>43</del> '59	-16°-37'-32	retrograde	-2583 Jul 01 j 11:01	10° <del>00</del> '12	
minimum elong	-2591 Mar 12 j 13:02	0° <del>44</del> '00	16°37'34	opposition	-2583 Sep 22 j 18:01	9° <del>00</del> '06	-16°-40'-10
max. Earth dist.	-2591 Mar 13 j 22:43	0° <del>45</del> '57	49.65680 AU	min. Earth dist.	-2583 Sep 21 j 20:19	9° <del>01</del> '08	47.98992 AU
retrograde	-2591 Jun 23 j 13:24	2° <del>15</del> '12		direct	-2583 Dec 12 j 22:41	8° <del>00</del> '51	
min. Earth dist.	-2591 Sep 13 j 20:51	1° <del>16</del> '13	47.76712 AU				
opposition	-2591 Sep 15 j 02:58	1° <del>14</del> '47	-17°-16'-57	conjunction	-2582 Mar 21 j 18:31	9° <del>27</del> '43	-15°-57'-56
direct	-2591 Dec 05 j 07:17	0° <del>15</del> '23		minimum elong	-2582 Mar 21 j 18:40	9° <del>27</del> '43	15°57'58
				max. Earth dist.	-2582 Mar 22 j 16:50	9° <del>28</del> '59	49.91635 AU
conjunction	-2590 Mar 13 j 18:57	1° <del>43</del> '00	-16°-34'-9	retrograde	-2582 Jul 02 j 15:08	10° <del>57</del> '44	
minimum elong	-2590 Mar 13 j 19:05	1° <del>43</del> '01	16°34'13	opposition	-2582 Sep 23 j 22:48	9° <del>57</del> '41	-16°-34'-20
max. Earth dist.	-2590 Mar 15 j 02:13	1° <del>44</del> '49	49.70188 AU	min. Earth dist.	-2582 Sep 23 j 03:03	9° <del>58</del> '38	48.00293 AU
retrograde	-2590 Jun 24 j 22:07	3° <del>14</del> '04		direct	-2582 Dec 14 j 04:50	8° <del>58</del> '29	
min. Earth dist.	-2590 Sep 15 j 03:25	2° <del>15</del> '04	47.80896 AU				
opposition	-2590 Sep 16 j 08:14	2° <del>13</del> '42	-17°-13'-17	conjunction	-2581 Mar 23 j 00:28	10° <del>25</del> '20	-15°-52'-12
direct	-2590 Dec 06 j 10:23	1° <del>14</del> '20		minimum elong	-2581 Mar 23 j 00:38	10° <del>25</del> '20	15°52'15
				max. Earth dist.	-2581 Mar 23 j 22:23	10° <del>26</del> '35	49.92843 AU
conjunction	-2589 Mar 15 j 01:14	2° <del>41</del> '50	-16°-30'-33	retrograde	-2581 Jul 03 j 19:20	11° <del>55</del> '17	
minimum elong	-2589 Mar 15 j 01:23	2° <del>41</del> '50	16°30'35	min. Earth dist.	-2581 Sep 24 j 08:20	10° <del>56</del> '13	48.01187 AU
max. Earth dist.	-2589 Mar 16 j 07:56	2° <del>43</del> '36	49.74174 AU	opposition	-2581 Sep 25 j 03:18	10° <del>55</del> '19	-16°-28'-14
retrograde	-2589 Jun 26 j 04:38	4° <del>12</del> '43		direct	-2581 Dec 15 j 11:15	9° <del>56</del> '09	
min. Earth dist.	-2589 Sep 16 j 10:28	3° <del>13</del> '40	47.84573 AU				
opposition	-2589 Sep 17 j 13:17	3° <del>12</del> '23	-17°-9'-22	conjunction	-2580 Mar 23 j 06:21	11° <del>22</del> '59	-15°-46'-14
direct	-2589 Dec 07 j 14:46	2° <del>13</del> '02		minimum elong	-2580 Mar 23 j 06:31	11° <del>22</del> '59	15°46'16
				max. Earth dist.	-2580 Mar 24 j 01:46	11° <del>24</del> '05	49.93613 AU
conjunction	-2588 Mar 15 j 07:23	3° <del>40</del> '25	-16°-26'-41	retrograde	-2580 Jul 04 j 03:19	12° <del>52</del> '53	
minimum elong	-2588 Mar 15 j 07:30	3° <del>40</del> '25	16°26'44	opposition	-2580 Sep 25 j 08:00	11° <del>52</del> '59	-16°-21'-54
max. Earth dist.	-2588 Mar 16 j 12:18	3° <del>42</del> '04	49.77700 AU	min. Earth dist.	-2580 Sep 24 j 14:30	11° <del>53</del> '48	48.01617 AU
retrograde	-2588 Jun 26 j 09:42	5° <del>11</del> '08		direct	-2580 Dec 15 j 14:10	10° <del>53</del> '51	
opposition	-2588 Sep 17 j 18:11	4° <del>10</del> '50	-17°-5'-11				
min. Earth dist.	-2588 Sep 16 j 15:38	4° <del>12</del> '05	47.87810 AU	conjunction	-2579 Mar 24 j 12:18	12° <del>20</del> '39	-15°-40'-3
direct	-2588 Dec 07 j 19:47	3° <del>11</del> '28		minimum elong	-2579 Mar 24 j 12:28	12° <del>20</del> '40	15°40'05
				max. Earth dist.	-2579 Mar 25 j 06:59	12° <del>21</del> '43	49.93875 AU
conjunction	-2587 Mar 16 j 13:21	4° <del>38</del> '44	-16°-22'-34	retrograde	-2579 Jul 05 j 09:53	13° <del>50</del> '30	
minimum elong	-2587 Mar 16 j 13:31	4° <del>38</del> '45	16°22'37	opposition	-2579 Sep 26 j 12:39	12° <del>50</del> '38	-16°-15'-21
max. Earth dist.	-2587 Mar 17 j 16:49	4° <del>40</del> '19	49.80802 AU	min. Earth dist.	-2579 Sep 25 j 21:08	12° <del>51</del> '22	48.01511 AU
retrograde	-2587 Jun 27 j 12:35	6° <del>09</del> '18		direct	-2579 Dec 16 j 17:51	11° <del>51</del> '32	
opposition	-2587 Sep 18 j 23:06	5° <del>09</del> '01	-17°00'-44				
min. Earth dist.	-2587 Sep 17 j 22:33	5° <del>10</del> '12	47.90664 AU	conjunction	-2578 Mar 25 j 18:11	13° <del>18</del> '19	-15°-33'-37
direct	-2587 Dec 09 j 03:26	4° <del>09</del> '41		minimum elong	-2578 Mar 25 j 18:23	13° <del>18</del> '20	15°33'39
				max. Earth dist.	-2578 Mar 26 j 10:50	13° <del>19</del> '16	49.93621 AU
conjunction	-2586 Mar 17 j 19:21	5° <del>36</del> '49	-16°-18'-11	retrograde	-2578 Jul 06 j 15:52	14° <del>48</del> '05	
minimum elong	-2586 Mar 17 j 19:29	5° <del>36</del> '50	16°18'13	opposition	-2578 Sep 27 j 17:11	13° <del>48</del> '16	-16°-8'-33
max. Earth dist.	-2586 Mar 18 j 22:37	5° <del>38</del> '23	49.83564 AU	min. Earth dist.	-2578 Sep 27 j 02:09	13° <del>48</del> '58	48.00882 AU
retrograde	-2586 Jun 28 j 16:00	7° <del>07</del> '15		direct	-2578 Dec 17 j 21:50	12° <del>49</del> '09	
min. Earth dist.	-2586 Sep 19 j 03:44	6° <del>08</del> '09	47.93185 AU				
opposition	-2586 Sep 20 j 03:52	6° <del>07</del> '00	-16°-56'-1	conjunction	-2577 Mar 26 j 23:58	14° <del>15</del> '55	-15°-26'-59
direct	-2586 Dec 10 j 10:57	5° <del>07</del> '40		minimum elong	-2577 Mar 27 j 00:08	14° <del>15</del> '56	15°27'01
				max. Earth dist.	-2577 Mar 27 j 14:49	14° <del>16</del> '46	49.92838 AU
conjunction	-2585 Mar 19 j 01:06	6° <del>34</del> '43	-16°-13'-32	retrograde	-2577 Jul 07 j 19:17	15° <del>45</del> '38	
minimum elong	-2585 Mar 19 j 01:16	6° <del>34</del> '44	16°13'34	opposition	-2577 Sep 28 j 21:50	14° <del>45</del> '49	-16°-1'-32
max. Earth dist.	-2585 Mar 20 j 02:17	6° <del>36</del> '10	49.86018 AU	min. Earth dist.	-2577 Sep 28 j 09:13	14° <del>46</del> '25	47.99745 AU
retrograde	-2585 Jun 30 j 00:22	8° <del>05</del> '01		direct	-2577 Dec 19 j 04:28	13° <del>46</del> '43	
min. Earth dist.	-2585 Sep 20 j 09:21	7° <del>05</del> '55	47.95418 AU				
opposition	-2585 Sep 21 j 08:41	7° <del>04</del> '48	-16°-51'-1	conjunction	-2576 Mar 27 j 05:55	15° <del>13</del> '27	-15°-20'-6
direct	-2585 Dec 11 j 13:29	6° <del>05</del> '29		minimum elong	-2576 Mar 27 j 06:07	15° <del>13</del> '27	15°20'08
				max. Earth dist.	-2576 Mar 27 j 20:09	15° <del>14</del> '15	49.91582 AU
conjunction	-2584 Mar 19 j 07:04	7° <del>32</del> '28	-16°-8'-36	retrograde	-2576 Jul 07 j 21:50	16° <del>43</del> '06	
minimum elong	-2584 Mar 19 j 07:13	7° <del>32</del> '28	16°08'38	opposition	-2576 Sep 29 j 02:09	15° <del>43</del> '18	-15°-54'-16
max. Earth dist.	-2584 Mar 20 j 08:06	7° <del>33</del> '53	49.88183 AU	min. Earth dist.	-2576 Sep 28 j 14:10	15° <del>43</del> '52	47.98147 AU
retrograde	-2584 Jun 30 j 06:26	9° <del>02</del> '39		direct	-2576 Dec 19 j 12:10	14° <del>44</del> '10	



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 21

Attention, astronomical year style is used: The year -2575 in astronomical counting style is the year 2576 BCE in historical counting style.

conjunction	-2575 Mar 28 j 11:36	16° <del>11</del> 10'53	-15°-12'-59	retrograde	-2567 Jul 17 j 01:56	25° <del>11</del> 19'33	
minimum elong	-2575 Mar 28 j 11:46	16° <del>11</del> 10'53	15°13'01	opposition	-2567 Oct 07 j 18:02	24° <del>11</del> 19'54	-14°-37'-16
max. Earth dist.	-2575 Mar 28 j 23:26	16° <del>11</del> 11'33	49.89899 AU	min. Earth dist.	-2567 Oct 07 j 17:11	24° <del>11</del> 19'56	47.68012 AU
retrograde	-2575 Jul 09 j 05:49	17° <del>11</del> 40'28		direct	-2567 Dec 28 j 02:17	23° <del>11</del> 20'40	
opposition	-2575 Sep 30 j 06:38	16° <del>11</del> 40'41	-15°-46'-46				
min. Earth dist.	-2575 Sep 29 j 19:50	16° <del>11</del> 41'12	47.96164 AU	conjunction	-2566 Apr 06 j 15:47	24° <del>11</del> 47'41	-13°-57'-40
direct	-2575 Dec 20 j 14:40	15° <del>11</del> 41'32		minimum elong	-2566 Apr 06 j 15:59	24° <del>11</del> 47'42	13°57'41
				max. Earth dist.	-2566 Apr 06 j 17:02	24° <del>11</del> 47'45	49.59172 AU
conjunction	-2574 Mar 29 j 17:13	17° <del>11</del> 08'14	-15°-5'-38	retrograde	-2566 Jul 18 j 03:51	26° <del>11</del> 17'13	
minimum elong	-2574 Mar 29 j 17:26	17° <del>11</del> 08'15	15°05'39	opposition	-2566 Oct 08 j 22:33	25° <del>11</del> 17'32	-14°-27'-30
max. Earth dist.	-2574 Mar 30 j 04:55	17° <del>11</del> 08'54	49.87847 AU	min. Earth dist.	-2566 Oct 08 j 22:28	25° <del>11</del> 17'32	47.62469 AU
retrograde	-2574 Jul 10 j 12:25	18° <del>11</del> 37'47		direct	-2566 Dec 29 j 10:26	24° <del>11</del> 18'16	
opposition	-2574 Oct 01 j 11:07	17° <del>11</del> 38'00	-15°-38'-59				
min. Earth dist.	-2574 Oct 01 j 01:49	17° <del>11</del> 38'27	47.93826 AU	conjunction	-2565 Apr 07 j 21:46	25° <del>11</del> 45'20	-13°-48'-7
direct	-2574 Dec 21 j 18:01	16° <del>11</del> 38'51		minimum elong	-2565 Apr 07 j 21:59	25° <del>11</del> 45'20	13°48'08
				max. Earth dist.	-2565 Apr 07 j 20:16	25° <del>11</del> 45'15	49.53508 AU
conjunction	-2573 Mar 30 j 22:55	18° <del>11</del> 05'32	-14°-58'00	retrograde	-2565 Jul 19 j 10:05	27° <del>11</del> 14'52	
minimum elong	-2573 Mar 30 j 23:06	18° <del>11</del> 05'33	14°58'02	opposition	-2565 Oct 10 j 03:00	26° <del>11</del> 15'10	-14°-17'-30
max. Earth dist.	-2573 Mar 31 j 09:10	18° <del>11</del> 06'07	49.85483 AU	min. Earth dist.	-2565 Oct 10 j 04:35	26° <del>11</del> 15'05	47.56408 AU
retrograde	-2573 Jul 11 j 17:25	19° <del>11</del> 35'02		direct	-2565 Dec 30 j 14:52	25° <del>11</del> 15'50	
opposition	-2573 Oct 02 j 15:22	18° <del>11</del> 35'16	-15°-30'-57				
min. Earth dist.	-2573 Oct 02 j 06:11	18° <del>11</del> 35'42	47.91188 AU	conjunction	-2564 Apr 08 j 03:55	26° <del>11</del> 42'57	-13°-38'-21
direct	-2573 Dec 22 j 22:06	17° <del>11</del> 36'05		minimum elong	-2564 Apr 08 j 04:06	26° <del>11</del> 42'57	13°38'23
				max. Earth dist.	-2564 Apr 08 j 01:45	26° <del>11</del> 42'49	49.47335 AU
conjunction	-2572 Mar 31 j 04:41	19° <del>11</del> 02'49	-14°-50'-8	retrograde	-2564 Jul 19 j 16:22	28° <del>11</del> 12'30	
minimum elong	-2572 Mar 31 j 04:53	19° <del>11</del> 02'49	14°50'10	opposition	-2564 Oct 10 j 07:33	27° <del>11</del> 12'45	-14°-7'-15
max. Earth dist.	-2572 Mar 31 j 13:28	19° <del>11</del> 03'19	49.82813 AU	min. Earth dist.	-2564 Oct 10 j 10:55	27° <del>11</del> 12'35	47.49856 AU
retrograde	-2572 Jul 11 j 20:47	20° <del>11</del> 32'17		direct	-2564 Dec 30 j 18:58	26° <del>11</del> 13'21	
opposition	-2572 Oct 02 j 19:53	19° <del>11</del> 32'32	-15°-22'-38				
min. Earth dist.	-2572 Oct 02 j 12:33	19° <del>11</del> 32'53	47.88253 AU	conjunction	-2563 Apr 09 j 09:47	27° <del>11</del> 40'31	-13°-28'-21
direct	-2572 Dec 23 j 04:34	18° <del>11</del> 33'21		minimum elong	-2563 Apr 09 j 10:00	27° <del>11</del> 40'32	13°28'23
				max. Earth dist.	-2563 Apr 09 j 05:54	27° <del>11</del> 40'18	49.40718 AU
conjunction	-2571 Apr 01 j 10:24	20° <del>11</del> 00'06	-14°-42'00	retrograde	-2563 Jul 20 j 22:42	29° <del>11</del> 10'05	
minimum elong	-2571 Apr 01 j 10:36	20° <del>11</del> 00'07	14°42'01	opposition	-2563 Oct 11 j 11:57	28° <del>11</del> 10'18	-13°-56'-46
max. Earth dist.	-2571 Apr 01 j 19:00	20° <del>11</del> 00'35	49.79857 AU	min. Earth dist.	-2563 Oct 11 j 15:39	28° <del>11</del> 10'08	47.42892 AU
retrograde	-2571 Jul 12 j 23:24	21° <del>11</del> 29'34		direct	-2563 Dec 31 j 22:26	27° <del>11</del> 10'50	
opposition	-2571 Oct 04 j 00:13	20° <del>11</del> 29'50	-15°-14'-4				
min. Earth dist.	-2571 Oct 03 j 17:11	20° <del>11</del> 30'10	47.85009 AU	conjunction	-2562 Apr 10 j 15:43	28° <del>11</del> 38'05	-13°-18'-7
direct	-2571 Dec 24 j 11:51	19° <del>11</del> 30'40		minimum elong	-2562 Apr 10 j 15:55	28° <del>11</del> 38'06	13°18'08
				max. Earth dist.	-2562 Apr 10 j 10:14	28° <del>11</del> 37'47	49.33705 AU
conjunction	-2570 Apr 02 j 16:04	20° <del>11</del> 57'26	-14°-33'-36		-2562 Jun 25 j 01:25	0° <del>11</del> 0'0	
minimum elong	-2570 Apr 02 j 16:16	20° <del>11</del> 57'27	14°33'39	retrograde	-2562 Jul 22 j 02:54	0° <del>11</del> 07'41	
max. Earth dist.	-2570 Apr 02 j 22:30	20° <del>11</del> 57'48	49.76588 AU		-2562 Aug 18 j 04:37	30° <del>11</del> 0'0	
retrograde	-2570 Jul 14 j 06:25	22° <del>11</del> 26'55		opposition	-2562 Oct 12 j 16:29	29° <del>11</del> 07'51	-13°-46'-2
opposition	-2570 Oct 05 j 04:37	21° <del>11</del> 27'13	-15°-5'-13	min. Earth dist.	-2562 Oct 12 j 22:10	29° <del>11</del> 07'35	47.35568 AU
min. Earth dist.	-2570 Oct 04 j 22:55	21° <del>11</del> 27'29	47.81439 AU	direct	-2561 Jan 02 j 04:32	28° <del>11</del> 08'19	
direct	-2570 Dec 25 j 15:08	20° <del>11</del> 28'03					
				conjunction	-2561 Apr 11 j 21:44	29° <del>11</del> 35'40	-13°-7'-37
conjunction	-2569 Apr 03 j 21:55	21° <del>11</del> 54'53	-14°-24'-58	minimum elong	-2561 Apr 11 j 21:58	29° <del>11</del> 35'41	13°07'38
minimum elong	-2569 Apr 03 j 22:07	21° <del>11</del> 54'53	14°24'59	max. Earth dist.	-2561 Apr 11 j 16:02	29° <del>11</del> 35'21	49.26366 AU
max. Earth dist.	-2569 Apr 04 j 03:54	21° <del>11</del> 55'13	49.72951 AU		-2561 Apr 29 j 22:30	0° <del>11</del> 0'0	
retrograde	-2569 Jul 15 j 13:28	23° <del>11</del> 24'22		retrograde	-2561 Jul 23 j 05:30	1° <del>11</del> 05'19	
opposition	-2569 Oct 06 j 09:05	22° <del>11</del> 24'42	-14°-56'-8	opposition	-2561 Oct 13 j 20:57	0° <del>11</del> 05'27	-13°-35'-2
min. Earth dist.	-2569 Oct 06 j 05:06	22° <del>11</del> 24'53	47.77454 AU	min. Earth dist.	-2561 Oct 14 j 02:54	0° <del>11</del> 05'10	47.27918 AU
direct	-2569 Dec 26 j 18:32	21° <del>11</del> 25'32			-2561 Oct 18 j 15:02	30° <del>11</del> 0'0	
				direct	-2560 Jan 03 j 12:06	29° <del>11</del> 05'51	
conjunction	-2568 Apr 04 j 03:53	22° <del>11</del> 52'25	-14°-16'-5		-2560 Mar 18 j 03:43	0° <del>11</del> 0'0	
minimum elong	-2568 Apr 04 j 04:04	22° <del>11</del> 52'26	14°16'06				
max. Earth dist.	-2568 Apr 04 j 07:55	22° <del>11</del> 52'39	49.68880 AU	conjunction	-2560 Apr 12 j 03:43	0° <del>11</del> 33'19	-12°-56'-52
retrograde	-2568 Jul 15 j 21:12	24° <del>11</del> 21'55		minimum elong	-2560 Apr 12 j 03:55	0° <del>11</del> 33'19	12°56'52
opposition	-2568 Oct 06 j 13:24	23° <del>11</del> 22'16	-14°-46'-49	max. Earth dist.	-2560 Apr 11 j 19:47	0° <del>11</del> 32'52	49.18718 AU
min. Earth dist.	-2568 Oct 06 j 10:05	23° <del>11</del> 22'25	47.72999 AU	retrograde	-2560 Jul 23 j 12:02	2° <del>11</del> 03'02	
direct	-2568 Dec 26 j 21:06	22° <del>11</del> 23'04		opposition	-2560 Oct 14 j 01:27	1° <del>11</del> 03'09	-13°-23'-45
				min. Earth dist.	-2560 Oct 14 j 08:39	1° <del>11</del> 02'48	47.19985 AU
conjunction	-2567 Apr 05 j 09:52	23° <del>11</del> 50'02	-14°-6'-59	direct	-2559 Jan 03 j 15:54	0° <del>11</del> 03'31	
minimum elong	-2567 Apr 05 j 10:04	23° <del>11</del> 50'03	14°06'59				
max. Earth dist.	-2567 Apr 05 j 11:59	23° <del>11</del> 50'09	49.64293 AU	conjunction	-2559 Apr 13 j 09:50	1° <del>11</del> 31'05	-12°-45'-52



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 22

Attention, astronomical year style is used: The year -2559 in astronomical counting style is the year 2560 BCE in historical counting style.

minimum elong	-2559 Apr 13 j 10:03	1°V31'06	12°45'53	opposition	-2551 Oct 22 j 20:40	9°V50'59	-11°-30'-46
max. Earth dist.	-2559 Apr 13 j 01:41	1°V30'37	49.10784 AU	min. Earth dist.	-2551 Oct 23 j 15:04	9°V50'05	46.30747 AU
retrograde	-2559 Jul 24 j 18:35	3°V00'54		direct	-2550 Jan 12 j 13:33	8°V50'40	
opposition	-2559 Oct 15 j 06:06	2°V01'00	-13°-12'-12				
min. Earth dist.	-2559 Oct 15 j 14:29	2°V00'36	47.11754 AU	conjunction	-2550 Apr 22 j 19:50	10°V19'45	-10°-55'-45
direct	-2558 Jan 04 j 19:51	1°V01'20		minimum elong	-2550 Apr 22 j 20:03	10°V19'46	10°55'44
				max. Earth dist.	-2550 Apr 21 j 21:52	10°V18'29	48.21020 AU
conjunction	-2558 Apr 14 j 15:45	2°V29'03	-12°-34'-35	retrograde	-2550 Aug 02 j 23:17	11°V50'38	
minimum elong	-2558 Apr 14 j 15:57	2°V29'03	12°34'36	opposition	-2550 Oct 24 j 01:46	10°V50'16	-11°-16'-56
max. Earth dist.	-2558 Apr 14 j 06:10	2°V28'30	49.02566 AU	min. Earth dist.	-2550 Oct 24 j 21:39	10°V49'18	46.18669 AU
retrograde	-2558 Jul 26 j 02:54	3°V58'58		direct	-2549 Jan 13 j 19:18	9°V49'50	
opposition	-2558 Oct 16 j 10:41	2°V59'04	-13°00'-24	max. Earth dist.	-2549 Apr 23 j 04:28	11°V17'49	48.08933 AU
min. Earth dist.	-2558 Oct 16 j 19:24	2°V58'39	47.03217 AU				
direct	-2557 Jan 05 j 22:12	1°V59'21		conjunction	-2549 Apr 24 j 02:43	11°V19'06	-10°-42'-17
				minimum elong	-2549 Apr 24 j 02:55	11°V19'07	10°42'16
conjunction	-2557 Apr 15 j 22:01	3°V27'14	-12°-23'-4	retrograde	-2549 Aug 04 j 04:29	12°V50'08	
minimum elong	-2557 Apr 15 j 22:14	3°V27'15	12°23'05	opposition	-2549 Oct 25 j 06:51	11°V49'41	-11°-2'-51
max. Earth dist.	-2557 Apr 15 j 10:54	3°V26'36	48.93996 AU	min. Earth dist.	-2549 Oct 26 j 03:50	11°V48'40	46.06284 AU
retrograde	-2557 Jul 27 j 09:12	4°V57'16		direct	-2548 Jan 15 j 01:32	10°V49'08	
opposition	-2557 Oct 17 j 15:21	3°V57'22	-12°-48'-20	max. Earth dist.	-2548 Apr 23 j 09:50	12°V17'13	47.96576 AU
min. Earth dist.	-2557 Oct 18 j 02:23	3°V56'50	46.94304 AU				
direct	-2556 Jan 07 j 02:34	2°V57'36		conjunction	-2548 Apr 24 j 09:34	12°V18'36	-10°-28'-33
				minimum elong	-2548 Apr 24 j 09:47	12°V18'36	10°28'34
conjunction	-2556 Apr 16 j 04:30	4°V25'41	-12°-11'-18	retrograde	-2548 Aug 04 j 13:28	13°V49'46	
minimum elong	-2556 Apr 16 j 04:42	4°V25'41	12°11'18	opposition	-2548 Oct 25 j 12:04	12°V49'15	-10°-48'-28
max. Earth dist.	-2556 Apr 15 j 16:39	4°V25'00	48.85026 AU	min. Earth dist.	-2548 Oct 26 j 09:18	12°V48'13	45.93643 AU
retrograde	-2556 Jul 27 j 11:49	5°V55'50		direct	-2547 Jan 15 j 04:23	11°V48'35	
opposition	-2556 Oct 17 j 20:04	4°V55'55	-12°-36'00				
min. Earth dist.	-2556 Oct 18 j 07:40	4°V55'21	46.84944 AU	conjunction	-2547 Apr 25 j 16:23	13°V18'17	-10°-14'-33
direct	-2555 Jan 07 j 10:38	3°V56'06		minimum elong	-2547 Apr 25 j 16:35	13°V18'17	10°14'33
				max. Earth dist.	-2547 Apr 24 j 15:25	13°V16'50	47.83951 AU
conjunction	-2555 Apr 17 j 10:48	5°V24'21	-11°-59'-18	retrograde	-2547 Aug 05 j 21:49	14°V49'39	
minimum elong	-2555 Apr 17 j 11:00	5°V24'21	11°59'19	opposition	-2547 Oct 26 j 17:29	13°V49'02	-10°-33'-48
max. Earth dist.	-2555 Apr 16 j 20:17	5°V23'31	48.75575 AU	min. Earth dist.	-2547 Oct 27 j 16:33	13°V47'55	45.80741 AU
retrograde	-2555 Jul 28 j 17:33	6°V54'38		direct	-2546 Jan 16 j 08:16	12°V48'16	
opposition	-2555 Oct 19 j 00:57	5°V54'40	-12°-23'-27				
min. Earth dist.	-2555 Oct 19 j 14:20	5°V54'02	46.75092 AU	conjunction	-2546 Apr 26 j 23:28	14°V18'14	-10°00'-17
direct	-2554 Jan 08 j 16:06	4°V54'48		minimum elong	-2546 Apr 26 j 23:40	14°V18'14	10°00'18
				max. Earth dist.	-2546 Apr 25 j 22:10	14°V16'45	47.71076 AU
conjunction	-2554 Apr 18 j 17:25	6°V23'12	-11°-47'-4	retrograde	-2546 Aug 07 j 02:14	15°V49'47	
minimum elong	-2554 Apr 18 j 17:37	6°V23'13	11°47'04	opposition	-2546 Oct 27 j 22:47	14°V49'07	-10°-18'-51
max. Earth dist.	-2554 Apr 18 j 02:11	6°V22'20	48.65611 AU	min. Earth dist.	-2546 Oct 28 j 21:58	14°V48'00	45.67561 AU
retrograde	-2554 Jul 30 j 00:26	7°V53'37		direct	-2545 Jan 17 j 15:56	13°V48'15	
opposition	-2554 Oct 20 j 05:51	6°V53'36	-12°-10'-39	max. Earth dist.	-2545 Apr 27 j 03:02	15°V16'53	47.57893 AU
min. Earth dist.	-2554 Oct 20 j 20:58	6°V52'53	46.64711 AU				
direct	-2553 Jan 09 j 20:16	5°V53'39		conjunction	-2545 Apr 28 j 06:36	15°V18'29	-9°-45'-45
				minimum elong	-2545 Apr 28 j 06:48	15°V18'30	9°45'45
conjunction	-2553 Apr 19 j 23:58	7°V22'13	-11°-34'-36	retrograde	-2545 Aug 08 j 08:15	16°V50'17	
minimum elong	-2553 Apr 20 j 00:10	7°V22'13	11°34'36	opposition	-2545 Oct 29 j 04:21	15°V49'33	-10°-3'-38
max. Earth dist.	-2553 Apr 19 j 06:36	7°V21'13	48.55142 AU	min. Earth dist.	-2545 Oct 30 j 05:15	15°V48'20	45.54052 AU
retrograde	-2553 Jul 31 j 08:48	8°V52'44		direct	-2544 Jan 18 j 22:17	14°V48'36	
opposition	-2553 Oct 21 j 10:44	7°V52'39	-11°-57'-36	max. Earth dist.	-2544 Apr 27 j 10:04	16°V17'29	47.44330 AU
min. Earth dist.	-2553 Oct 22 j 02:33	7°V51'53	46.53833 AU				
direct	-2552 Jan 10 j 23:01	6°V52'35		conjunction	-2544 Apr 28 j 14:05	16°V19'07	-9°-30'-57
max. Earth dist.	-2552 Apr 19 j 11:27	8°V20'13	48.44173 AU	minimum elong	-2544 Apr 28 j 14:16	16°V19'08	9°30'58
				retrograde	-2544 Aug 08 j 14:40	17°V51'10	
conjunction	-2552 Apr 20 j 06:38	8°V21'19	-11°-21'-53	opposition	-2544 Oct 29 j 09:58	16°V50'22	-9°-48'-9
minimum elong	-2552 Apr 20 j 06:51	8°V21'20	11°21'53	min. Earth dist.	-2544 Oct 30 j 12:21	16°V49'05	45.40122 AU
retrograde	-2552 Jul 31 j 14:27	9°V51'57		direct	-2543 Jan 19 j 04:17	15°V49'19	
opposition	-2552 Oct 21 j 15:42	8°V51'47	-11°-44'-19				
min. Earth dist.	-2552 Oct 22 j 09:46	8°V50'54	46.42490 AU	conjunction	-2543 Apr 29 j 21:33	17°V20'08	-9°-15'-54
direct	-2551 Jan 11 j 05:12	7°V51'36		minimum elong	-2543 Apr 29 j 21:45	17°V20'08	9°15'53
				max. Earth dist.	-2543 Apr 28 j 15:24	17°V18'22	47.30333 AU
conjunction	-2551 Apr 21 j 13:21	9°V20'30	-11°-8'-57	retrograde	-2543 Aug 10 j 00:14	18°V52'25	
minimum elong	-2551 Apr 21 j 13:33	9°V20'31	11°08'57	opposition	-2543 Oct 30 j 15:45	17°V51'33	-9°-32'-23
max. Earth dist.	-2551 Apr 20 j 17:39	9°V19'22	48.32784 AU	min. Earth dist.	-2543 Oct 31 j 18:53	17°V50'13	45.25736 AU
retrograde	-2551 Aug 01 j 17:26	10°V51'14		direct	-2542 Jan 20 j 07:26	16°V50'23	



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Attention, astronomical year style is used: The year -2542 in astronomical counting style is the year 2543 BCE in historical counting style.

max. Earth dist.	-2542 Apr 29 j 21:13	18° $\Upsilon$ 19'37	47.15838 AU	minimum elong	-2534 May 09 j 23:09	26° $\Upsilon$ 43'55	6°48'45
				retrograde	-2534 Aug 19 j 18:23	28° $\Upsilon$ 18'45	
conjunction	-2542 May 01 j 05:09	18° $\Upsilon$ 21'30	-9°00'-37	opposition	-2534 Nov 09 j 01:26	27° $\Upsilon$ 16'46	-6°-58'-10
minimum elong	-2542 May 01 j 05:20	18° $\Upsilon$ 21'31	9°00'36	min. Earth dist.	-2534 Nov 10 j 15:18	27° $\Upsilon$ 14'52	43.77739 AU
retrograde	-2542 Aug 11 j 08:12	19° $\Upsilon$ 54'02		direct	-2533 Jan 29 j 22:53	26° $\Upsilon$ 14'09	
opposition	-2542 Oct 31 j 21:48	18° $\Upsilon$ 53'05	-9°-16'-22	max. Earth dist.	-2533 May 09 j 12:27	27° $\Upsilon$ 45'49	45.67545 AU
min. Earth dist.	-2542 Nov 02 j 03:18	18° $\Upsilon$ 51'38	45.10842 AU				
direct	-2541 Jan 21 j 13:19	17° $\Upsilon$ 51'47		conjunction	-2533 May 11 j 07:56	27° $\Upsilon$ 48'27	-6°-31'-3
max. Earth dist.	-2541 May 01 j 04:14	19° $\Upsilon$ 21'16	47.00848 AU	minimum elong	-2533 May 11 j 08:05	27° $\Upsilon$ 48'28	6°31'02
				retrograde	-2533 Aug 21 j 04:21	29° $\Upsilon$ 23'40	
conjunction	-2541 May 02 j 13:03	19° $\Upsilon$ 23'12	-8°-45'-3	opposition	-2533 Nov 10 j 08:27	28° $\Upsilon$ 21'35	-6°-39'-34
minimum elong	-2541 May 02 j 13:15	19° $\Upsilon$ 23'13	8°45'03	min. Earth dist.	-2533 Nov 11 j 23:10	28° $\Upsilon$ 19'37	43.59801 AU
retrograde	-2541 Aug 12 j 14:05	20° $\Upsilon$ 55'59		direct	-2532 Jan 31 j 04:02	27° $\Upsilon$ 18'47	
opposition	-2541 Nov 02 j 03:42	19° $\Upsilon$ 54'55	-9°00'-5	max. Earth dist.	-2532 May 09 j 20:30	28° $\Upsilon$ 50'49	45.49540 AU
min. Earth dist.	-2541 Nov 03 j 09:46	19° $\Upsilon$ 53'26	44.95453 AU				
direct	-2540 Jan 22 j 21:55	18° $\Upsilon$ 53'28		conjunction	-2532 May 11 j 17:14	28° $\Upsilon$ 53'32	-6°-13'-2
max. Earth dist.	-2540 May 01 j 09:28	20° $\Upsilon$ 23'07	46.85374 AU	minimum elong	-2532 May 11 j 17:23	28° $\Upsilon$ 53'32	6°13'01
					-2532 Jun 30 j 21:50	0° $\mathcal{B}$	
conjunction	-2540 May 02 j 21:00	20° $\Upsilon$ 25'13	-8°-29'-15	retrograde	-2532 Aug 21 j 14:38	0° $\mathcal{B}$ 29'08	
minimum elong	-2540 May 02 j 21:10	20° $\Upsilon$ 25'13	8°29'15		-2532 Oct 12 j 20:26	30° $\mathcal{R}\Upsilon$	
retrograde	-2540 Aug 12 j 20:57	21° $\Upsilon$ 58'14		opposition	-2532 Nov 10 j 15:56	29° $\Upsilon$ 26'55	-6°-20'-41
opposition	-2540 Nov 02 j 09:54	20° $\Upsilon$ 57'03	-8°-43'-32	min. Earth dist.	-2532 Nov 12 j 08:44	29° $\Upsilon$ 24'51	43.41482 AU
min. Earth dist.	-2540 Nov 03 j 17:54	20° $\Upsilon$ 55'28	44.79616 AU	direct	-2531 Jan 31 j 09:46	28° $\Upsilon$ 23'57	
direct	-2539 Jan 23 j 05:04	19° $\Upsilon$ 55'27		max. Earth dist.	-2531 May 11 j 04:53	29° $\Upsilon$ 56'21	45.31135 AU
max. Earth dist.	-2539 May 02 j 17:04	21° $\Upsilon$ 25'22	46.69465 AU				
				conjunction	-2531 May 13 j 02:33	29° $\Upsilon$ 59'08	-5°-54'-45
conjunction	-2539 May 04 j 04:59	21° $\Upsilon$ 27'30	-8°-13'-11	minimum elong	-2531 May 13 j 02:42	29° $\Upsilon$ 59'09	5°54'45
minimum elong	-2539 May 04 j 05:10	21° $\Upsilon$ 27'31	8°13'11		-2531 May 13 j 16:40	0° $\mathcal{B}$	
retrograde	-2539 Aug 14 j 02:23	23° $\Upsilon$ 00'48		retrograde	-2531 Aug 23 j 01:14	1° $\mathcal{B}$ 35'07	
opposition	-2539 Nov 03 j 16:10	21° $\Upsilon$ 59'29	-8°-26'-42	opposition	-2531 Nov 11 j 23:29	0° $\mathcal{B}$ 32'45	-6°-1'-29
min. Earth dist.	-2539 Nov 05 j 01:13	21° $\Upsilon$ 57'51	44.63367 AU	min. Earth dist.	-2531 Nov 13 j 16:44	0° $\mathcal{B}$ 30'40	43.22732 AU
direct	-2538 Jan 24 j 12:59	20° $\Upsilon$ 57'43			-2531 Dec 10 j 06:33	30° $\mathcal{R}\Upsilon$	
max. Earth dist.	-2538 May 03 j 23:19	22° $\Upsilon$ 27'51	46.53189 AU	direct	-2530 Feb 01 j 17:37	29° $\Upsilon$ 29'36	
					-2530 Mar 26 j 16:24	0° $\mathcal{B}$	
conjunction	-2538 May 05 j 13:03	22° $\Upsilon$ 30'05	-7°-56'-52	max. Earth dist.	-2530 May 12 j 11:52	1° $\mathcal{B}$ 02'18	45.12266 AU
minimum elong	-2538 May 05 j 13:13	22° $\Upsilon$ 30'06	7°56'51				
retrograde	-2538 Aug 15 j 12:11	24° $\Upsilon$ 03'40		conjunction	-2530 May 14 j 12:11	1° $\mathcal{B}$ 05'15	-5°-36'-12
opposition	-2538 Nov 04 j 22:23	23° $\Upsilon$ 02'13	-8°-9'-36	minimum elong	-2530 May 14 j 12:19	1° $\mathcal{B}$ 05'16	5°36'11
min. Earth dist.	-2538 Nov 06 j 08:06	23° $\Upsilon$ 00'32	44.46787 AU	retrograde	-2530 Aug 24 j 11:13	2° $\mathcal{B}$ 41'37	
direct	-2537 Jan 25 j 17:00	22° $\Upsilon$ 00'16		opposition	-2530 Nov 13 j 07:16	1° $\mathcal{B}$ 39'05	-5°-42'-1
max. Earth dist.	-2537 May 05 j 06:23	23° $\Upsilon$ 30'40	46.36581 AU	min. Earth dist.	-2530 Nov 15 j 02:45	1° $\mathcal{B}$ 36'52	43.03522 AU
				direct	-2529 Feb 03 j 01:55	0° $\mathcal{B}$ 35'43	
conjunction	-2537 May 06 j 21:23	23° $\Upsilon$ 32'59	-7°-40'-15	max. Earth dist.	-2529 May 13 j 21:16	2° $\mathcal{B}$ 08'50	44.92929 AU
minimum elong	-2537 May 06 j 21:33	23° $\Upsilon$ 33'00	7°40'15				
retrograde	-2537 Aug 16 j 22:45	25° $\Upsilon$ 06'51		conjunction	-2529 May 15 j 22:11	2° $\mathcal{B}$ 11'50	-5°-17'-23
opposition	-2537 Nov 06 j 04:58	24° $\Upsilon$ 05'16	-7°-52'-11	minimum elong	-2529 May 15 j 22:19	2° $\mathcal{B}$ 11'51	5°17'23
min. Earth dist.	-2537 Nov 07 j 16:34	24° $\Upsilon$ 03'29	44.29902 AU	retrograde	-2529 Aug 25 j 17:50	3° $\mathcal{B}$ 48'35	
direct	-2536 Jan 26 j 21:18	23° $\Upsilon$ 03'08		opposition	-2529 Nov 14 j 15:16	2° $\mathcal{B}$ 45'52	-5°-22'-15
max. Earth dist.	-2536 May 05 j 14:18	24° $\Upsilon$ 33'52	46.19701 AU	min. Earth dist.	-2529 Nov 16 j 11:41	2° $\mathcal{B}$ 43'36	42.83838 AU
				direct	-2528 Feb 04 j 12:26	1° $\mathcal{B}$ 42'16	
conjunction	-2536 May 07 j 05:48	24° $\Upsilon$ 36'13	-7°-23'-23	max. Earth dist.	-2528 May 14 j 04:56	3° $\mathcal{B}$ 15'41	44.73141 AU
minimum elong	-2536 May 07 j 05:57	24° $\Upsilon$ 36'14	7°23'21				
retrograde	-2536 Aug 17 j 06:02	26° $\Upsilon$ 10'23		conjunction	-2528 May 16 j 08:09	3° $\mathcal{B}$ 18'51	-4°-58'-17
opposition	-2536 Nov 06 j 11:32	25° $\Upsilon$ 08'40	-7°-34'-29	minimum elong	-2528 May 16 j 08:17	3° $\mathcal{B}$ 18'51	4°58'16
min. Earth dist.	-2536 Nov 07 j 23:01	25° $\Upsilon$ 06'54	44.12758 AU	retrograde	-2528 Aug 26 j 02:51	4° $\mathcal{B}$ 56'00	
direct	-2535 Jan 27 j 05:09	24° $\Upsilon$ 06'22		opposition	-2528 Nov 14 j 23:22	3° $\mathcal{B}$ 53'05	-5°-2'-11
max. Earth dist.	-2535 May 06 j 20:45	25° $\Upsilon$ 37'21	46.02570 AU	min. Earth dist.	-2528 Nov 16 j 20:57	3° $\mathcal{B}$ 50'45	42.63740 AU
				direct	-2527 Feb 04 j 20:25	2° $\mathcal{B}$ 49'15	
conjunction	-2535 May 08 j 14:17	25° $\Upsilon$ 39'51	-7°-6'-13	max. Earth dist.	-2527 May 15 j 14:05	4° $\mathcal{B}$ 23'03	44.52942 AU
minimum elong	-2535 May 08 j 14:27	25° $\Upsilon$ 39'51	7°06'13				
retrograde	-2535 Aug 18 j 12:49	27° $\Upsilon$ 14'20		conjunction	-2527 May 17 j 18:25	4° $\mathcal{B}$ 26'18	-4°-38'-55
opposition	-2535 Nov 07 j 18:24	26° $\Upsilon$ 12'29	-7°-16'-29	minimum elong	-2527 May 17 j 18:32	4° $\mathcal{B}$ 26'19	4°38'54
min. Earth dist.	-2535 Nov 09 j 07:29	26° $\Upsilon$ 10'38	43.95382 AU	retrograde	-2527 Aug 27 j 13:09	6° $\mathcal{B}$ 03'53	
direct	-2534 Jan 28 j 13:28	25° $\Upsilon$ 10'02		opposition	-2527 Nov 16 j 07:44	5° $\mathcal{B}$ 00'45	-4°-41'-50
max. Earth dist.	-2534 May 08 j 05:29	26° $\Upsilon$ 41'24	45.85196 AU	min. Earth dist.	-2527 Nov 18 j 07:09	4° $\mathcal{B}$ 58'18	42.43269 AU
				direct	-2526 Feb 06 j 03:24	3° $\mathcal{B}$ 56'39	
conjunction	-2534 May 09 j 23:00	26° $\Upsilon$ 43'54	-6°-48'-46	max. Earth dist.	-2526 May 16 j 23:29	5° $\mathcal{B}$ 30'53	44.32415 AU



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Attention, astronomical year style is used: The year -2526 in astronomical counting style is the year 2527 BCE in historical counting style.

conjunction	-2526 May 19 j 04:42	5°834'12	-4°-19'-16	conjunction	-2518 May 29 j 01:08	15°800'08	-1°-31'-45
minimum elong	-2526 May 19 j 04:49	5°834'12	4°19'14	minimum elong	-2518 May 29 j 01:10	15°800'08	1°31'43
retrograde	-2526 Aug 29 j 00:27	7°812'12		retrograde	-2518 Sep 07 j 19:32	16°842'31	
opposition	-2526 Nov 17 j 16:13	6°808'52	-4°-21'-10	opposition	-2518 Nov 26 j 21:45	15°837'34	-1°-24'-44
min. Earth dist.	-2526 Nov 19 j 15:41	6°806'25	42.22494 AU	min. Earth dist.	-2518 Nov 29 j 05:45	15°834'35	40.48437 AU
direct	-2525 Feb 07 j 11:04	5°804'30			-2518 Dec 28 j 03:10	15°8	
max. Earth dist.	-2525 May 18 j 08:09	6°839'08	44.11590 AU	direct	-2517 Feb 16 j 17:52	14°831'13	
					-2517 Apr 07 j 16:21	15°8	
conjunction	-2525 May 20 j 15:21	6°842'35	-3°-59'-20	max. Earth dist.	-2517 May 27 j 22:44	16°810'16	42.36969 AU
minimum elong	-2525 May 20 j 15:27	6°842'35	3°59'18				
retrograde	-2525 Aug 30 j 10:56	8°821'02		conjunction	-2517 May 30 j 14:18	16°814'26	-1°-9'-32
opposition	-2525 Nov 19 j 00:57	7°817'29	-4°00'-12	minimum elong	-2517 May 30 j 14:20	16°814'26	1°09'30
min. Earth dist.	-2525 Nov 21 j 02:18	7°814'55	42.01471 AU	retrograde	-2517 Sep 09 j 05:56	17°857'26	
direct	-2524 Feb 08 j 20:32	6°812'52		opposition	-2517 Nov 28 j 08:50	16°852'14	-1°-1'-19
max. Earth dist.	-2524 May 18 j 19:14	7°848'02	43.90542 AU	min. Earth dist.	-2517 Nov 30 j 18:17	16°849'09	40.25334 AU
				direct	-2516 Feb 18 j 05:48	15°845'35	
conjunction	-2524 May 21 j 02:17	7°851'30	-3°-39'-6	max. Earth dist.	-2516 May 28 j 10:21	17°825'13	42.13728 AU
minimum elong	-2524 May 21 j 02:23	7°851'30	3°39'04				
retrograde	-2524 Aug 30 j 19:01	9°830'26		conjunction	-2516 May 31 j 03:37	17°829'30	0°-47'-4
opposition	-2524 Nov 19 j 09:59	8°826'40	-3°-38'-55	minimum elong	-2516 May 31 j 03:38	17°829'31	0°47'02
min. Earth dist.	-2524 Nov 21 j 11:32	8°824'05	41.80246 AU	retrograde	-2516 Sep 09 j 19:44	19°813'08	
direct	-2523 Feb 09 j 08:31	7°821'48		opposition	-2516 Nov 28 j 20:11	18°807'41	0°-37'-36
max. Earth dist.	-2523 May 20 j 04:10	8°857'24	43.69313 AU	min. Earth dist.	-2516 Dec 01 j 06:05	18°804'34	40.01904 AU
				direct	-2515 Feb 18 j 15:09	17°800'42	
conjunction	-2523 May 22 j 13:07	9°801'01	-3°-18'-35	max. Earth dist.	-2515 May 29 j 22:20	18°840'55	41.90153 AU
minimum elong	-2523 May 22 j 13:12	9°801'01	3°18'34				
retrograde	-2523 Sep 01 j 06:05	10°840'28		conjunction	-2515 Jun 01 j 17:07	18°845'20	0°-24'-19
opposition	-2523 Nov 20 j 19:15	9°836'30	-3°-17'-20	minimum elong	-2515 Jun 01 j 17:08	18°845'20	0°24'17
min. Earth dist.	-2523 Nov 22 j 21:35	9°833'52	41.58866 AU	retrograde	-2515 Sep 11 j 10:11	20°829'38	
direct	-2522 Feb 10 j 17:03	8°831'24		opposition	-2515 Nov 30 j 07:57	19°823'52	0°-13'-34
max. Earth dist.	-2522 May 21 j 15:13	10°807'34	43.47911 AU	min. Earth dist.	-2515 Dec 02 j 19:49	19°820'38	39.78183 AU
				direct	-2514 Feb 20 j 01:39	18°816'34	
conjunction	-2522 May 24 j 00:33	10°811'13	-2°-57'-47	max. Earth dist.	-2514 May 31 j 12:06	19°857'29	41.66321 AU
minimum elong	-2522 May 24 j 00:38	10°811'13	2°57'46				
retrograde	-2522 Sep 02 j 16:26	11°851'13		conjunction	-2514 Jun 03 j 07:05	20°801'56	0°-1'-19
opposition	-2522 Nov 22 j 04:44	10°847'04	-2°-55'-25	minimum elong	-2514 Jun 03 j 07:04	20°801'56	0°01'18
min. Earth dist.	-2522 Nov 24 j 08:23	10°844'21	41.37307 AU	behind sun begin	-2514 Jun 03 j 00:33	20°801'32	
direct	-2521 Feb 12 j 01:48	9°841'44		behind sun end	-2514 Jun 03 j 13:36	20°802'21	
max. Earth dist.	-2521 May 23 j 01:58	11°818'27	43.26330 AU	asc. node	-2514 Jun 23 j 18:11	20°834'13	
				retrograde	-2514 Sep 13 j 01:23	21°846'52	
conjunction	-2521 May 25 j 12:14	11°822'11	-2°-36'-42	opposition	-2514 Dec 01 j 19:48	20°840'49	0°10'43
minimum elong	-2521 May 25 j 12:18	11°822'11	2°36'40	min. Earth dist.	-2514 Dec 04 j 07:43	20°837'34	39.54236 AU
retrograde	-2521 Sep 04 j 06:17	13°802'45		direct	-2513 Feb 21 j 14:39	19°833'09	
opposition	-2521 Nov 23 j 14:27	11°858'25	-2°-33'-13	max. Earth dist.	-2513 Jun 02 j 00:14	21°814'41	41.42279 AU
min. Earth dist.	-2521 Nov 25 j 18:18	11°855'42	41.15548 AU				
direct	-2520 Feb 13 j 09:36	10°852'51		conjunction	-2513 Jun 04 j 21:20	21°819'18	0°22'01
max. Earth dist.	-2520 May 23 j 12:05	12°830'07	43.04490 AU	minimum elong	-2513 Jun 04 j 21:19	21°819'18	0°22'04
				retrograde	-2513 Sep 14 j 16:37	23°804'55	
conjunction	-2520 May 26 j 00:12	12°833'59	-2°-15'-20	opposition	-2513 Dec 03 j 08:11	21°858'34	0°35'20
minimum elong	-2520 May 26 j 00:16	12°833'59	2°15'18	min. Earth dist.	-2513 Dec 05 j 21:36	21°855'13	39.30132 AU
retrograde	-2520 Sep 04 j 21:04	14°815'09		direct	-2512 Feb 23 j 03:10	20°850'33	
opposition	-2520 Nov 24 j 00:35	13°810'37	-2°-10'-41	max. Earth dist.	-2512 Jun 02 j 15:02	22°832'50	41.18090 AU
min. Earth dist.	-2520 Nov 26 j 06:33	13°807'47	40.93517 AU				
direct	-2519 Feb 13 j 17:56	12°804'49		conjunction	-2512 Jun 05 j 11:55	22°837'29	0°45'33
max. Earth dist.	-2519 May 25 j 00:10	13°842'44	42.82351 AU	minimum elong	-2512 Jun 05 j 11:54	22°837'29	0°45'36
				retrograde	-2512 Sep 15 j 04:11	24°823'48	
conjunction	-2519 May 27 j 12:35	13°846'38	-1°-53'-40	opposition	-2512 Dec 03 j 20:57	23°817'09	1°00'13
minimum elong	-2519 May 27 j 12:38	13°846'38	1°53'38	min. Earth dist.	-2512 Dec 06 j 10:43	23°813'46	39.05913 AU
	-2519 Jul 19 j 00:19	15°8		direct	-2511 Feb 23 j 17:48	22°808'47	
retrograde	-2519 Sep 06 j 07:56	15°828'24		max. Earth dist.	-2511 Jun 04 j 04:34	23°851'47	40.93821 AU
	-2519 Oct 26 j 03:14	15°8					
opposition	-2519 Nov 25 j 10:58	14°823'41	-1°-47'-52	conjunction	-2511 Jun 07 j 02:46	23°856'33	1°09'21
min. Earth dist.	-2519 Nov 27 j 17:17	14°820'48	40.71158 AU	minimum elong	-2511 Jun 07 j 02:43	23°856'33	1°09'24
direct	-2518 Feb 15 j 06:12	13°817'37		retrograde	-2511 Sep 16 j 18:19	25°843'36	
max. Earth dist.	-2518 May 26 j 10:15	14°856'02	42.59855 AU	opposition	-2511 Dec 05 j 10:01	24°836'40	1°25'23
	-2518 May 28 j 23:09	15°8		min. Earth dist.	-2511 Dec 08 j 00:03	24°833'15	38.81647 AU
				direct	-2510 Feb 25 j 06:16	23°827'58	



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 25

Attention, astronomical year style is used: The year -2510 in astronomical counting style is the year 2511 BCE in historical counting style.

max. Earth dist.	-2510 Jun 05 j 19:21	25° <b>8</b> 11'44	40.69482 AU	max. Earth dist.	-2502 Jun 17 j 08:24	6° <b>II</b> 33'48	38.68916 AU
conjunction	-2510 Jun 08 j 18:09	25° <b>8</b> 16'35	1°33'23	conjunction	-2502 Jun 20 j 14:31	6° <b>II</b> 39'30	4°53'42
minimum elong	-2510 Jun 08 j 18:06	25° <b>8</b> 16'35	1°33'26	minimum elong	-2502 Jun 20 j 14:22	6° <b>II</b> 39'29	4°53'46
retrograde	-2510 Sep 18 j 09:23	27° <b>8</b> 04'26		retrograde	-2502 Sep 30 j 09:32	8° <b>II</b> 34'32	
opposition	-2510 Dec 06 j 23:39	25° <b>8</b> 57'13	1°50'49	opposition	-2502 Dec 18 j 05:05	7° <b>II</b> 24'48	5°23'09
min. Earth dist.	-2510 Dec 09 j 15:07	25° <b>8</b> 53'41	38.57317 AU	min. Earth dist.	-2502 Dec 21 j 02:57	7° <b>II</b> 20'45	36.56765 AU
direct	-2509 Feb 26 j 17:29	24° <b>8</b> 48'10		direct	-2501 Mar 09 j 18:54	6° <b>II</b> 12'44	
max. Earth dist.	-2509 Jun 07 j 10:51	26° <b>8</b> 32'47	40.45079 AU	max. Earth dist.	-2501 Jun 19 j 02:19	8° <b>II</b> 04'35	38.43046 AU
conjunction	-2509 Jun 10 j 09:59	26° <b>8</b> 37'42	1°57'40	conjunction	-2501 Jun 22 j 10:14	8° <b>II</b> 10'27	5°19'34
minimum elong	-2509 Jun 10 j 09:55	26° <b>8</b> 37'41	1°57'44	minimum elong	-2501 Jun 22 j 10:03	8° <b>II</b> 10'26	5°19'37
retrograde	-2509 Sep 20 j 02:23	28° <b>8</b> 26'21		retrograde	-2501 Oct 02 j 07:34	10° <b>II</b> 06'28	
opposition	-2509 Dec 08 j 13:30	27° <b>8</b> 18'52	2°16'31	opposition	-2501 Dec 19 j 23:01	8° <b>II</b> 56'22	5°50'37
min. Earth dist.	-2509 Dec 11 j 04:45	27° <b>8</b> 15'20	38.32910 AU	min. Earth dist.	-2501 Dec 22 j 22:07	8° <b>II</b> 52'13	36.31037 AU
direct	-2508 Feb 28 j 06:30	26° <b>8</b> 09'29		direct	-2500 Mar 10 j 13:06	7° <b>II</b> 43'51	
max. Earth dist.	-2508 Jun 08 j 01:23	27° <b>8</b> 54'54	40.20553 AU	max. Earth dist.	-2500 Jun 19 j 23:17	9° <b>II</b> 36'50	38.17164 AU
conjunction	-2508 Jun 11 j 02:18	27° <b>8</b> 59'58	2°22'11	conjunction	-2500 Jun 23 j 06:34	9° <b>II</b> 42'43	5°45'33
minimum elong	-2508 Jun 11 j 02:14	27° <b>8</b> 59'57	2°22'15	minimum elong	-2500 Jun 23 j 06:23	9° <b>II</b> 42'42	5°45'37
retrograde	-2508 Sep 20 j 20:53	29° <b>8</b> 49'28		retrograde	-2500 Oct 03 j 03:11	11° <b>II</b> 39'45	
opposition	-2508 Dec 09 j 04:03	28° <b>8</b> 41'42	2°42'29	opposition	-2500 Dec 20 j 17:40	10° <b>II</b> 29'15	6°18'13
min. Earth dist.	-2508 Dec 11 j 21:04	28° <b>8</b> 38'04	38.08375 AU	min. Earth dist.	-2500 Dec 23 j 16:53	10° <b>II</b> 25'04	36.05341 AU
direct	-2507 Feb 28 j 20:01	27° <b>8</b> 32'00		direct	-2499 Mar 12 j 09:09	9° <b>II</b> 16'19	
max. Earth dist.	-2507 Jun 09 j 18:18	29° <b>8</b> 18'21	39.95855 AU	max. Earth dist.	-2499 Jun 21 j 18:49	11° <b>II</b> 10'18	37.91349 AU
conjunction	-2507 Jun 12 j 19:01	29° <b>8</b> 23'27	2°46'56	conjunction	-2499 Jun 25 j 03:06	11° <b>II</b> 16'19	6°11'38
minimum elong	-2507 Jun 12 j 18:55	29° <b>8</b> 23'27	2°47'00	minimum elong	-2499 Jun 25 j 02:53	11° <b>II</b> 16'18	6°11'41
	-2507 Jul 04 j 21:12	0° <b>II</b>		retrograde	-2499 Oct 04 j 23:44	13° <b>II</b> 14'25	
retrograde	-2507 Sep 22 j 13:42	1° <b>II</b> 13'50		opposition	-2499 Dec 22 j 12:45	12° <b>II</b> 03'33	6°45'55
opposition	-2507 Dec 10 j 19:01	0° <b>II</b> 05'47	3°08'42	min. Earth dist.	-2499 Dec 25 j 11:59	11° <b>II</b> 59'21	35.79755 AU
min. Earth dist.	-2507 Dec 13 j 12:26	0° <b>II</b> 02'06	37.83640 AU	direct	-2498 Mar 14 j 03:29	10° <b>II</b> 50'10	
	-2507 Dec 15 j 01:49	30° <b>R</b> <b>8</b>		max. Earth dist.	-2498 Jun 23 j 16:11	12° <b>II</b> 45'18	37.65631 AU
direct	-2506 Mar 02 j 12:52	28° <b>8</b> 55'44		conjunction	-2498 Jun 27 j 00:34	12° <b>II</b> 51'24	6°37'47
	-2506 May 16 j 03:06	0° <b>II</b>		minimum elong	-2498 Jun 27 j 00:21	12° <b>II</b> 51'23	6°37'51
max. Earth dist.	-2506 Jun 11 j 09:23	0° <b>II</b> 42'54	39.70931 AU	retrograde	-2498 Oct 06 j 19:16	14° <b>II</b> 50'35	
conjunction	-2506 Jun 14 j 12:17	0° <b>II</b> 48'11	3°11'53	opposition	-2498 Dec 24 j 08:28	13° <b>II</b> 39'21	7°13'43
minimum elong	-2506 Jun 14 j 12:11	0° <b>II</b> 48'11	3°11'57	min. Earth dist.	-2498 Dec 27 j 08:40	13° <b>II</b> 35'03	35.54291 AU
retrograde	-2506 Sep 24 j 07:53	2° <b>II</b> 39'27		direct	-2497 Mar 15 j 21:36	12° <b>II</b> 25'33	
opposition	-2506 Dec 12 j 10:20	1° <b>II</b> 31'07	3°35'09	max. Earth dist.	-2497 Jun 25 j 14:12	14° <b>II</b> 21'52	37.40050 AU
min. Earth dist.	-2506 Dec 15 j 05:01	1° <b>II</b> 27'20	37.58682 AU	conjunction	-2497 Jun 28 j 22:33	14° <b>II</b> 28'00	7°03'59
direct	-2505 Mar 04 j 03:31	0° <b>II</b> 20'42		minimum elong	-2497 Jun 28 j 22:18	14° <b>II</b> 27'59	7°04'02
max. Earth dist.	-2505 Jun 13 j 02:43	2° <b>II</b> 08'47	39.45746 AU	retrograde	-2497 Oct 08 j 18:05	16° <b>II</b> 28'20	
conjunction	-2505 Jun 16 j 06:16	2° <b>II</b> 14'10	3°37'04	opposition	-2497 Dec 26 j 04:48	15° <b>II</b> 16'45	7°41'33
minimum elong	-2505 Jun 16 j 06:09	2° <b>II</b> 14'09	3°37'07	min. Earth dist.	-2497 Dec 29 j 04:19	15° <b>II</b> 12'28	35.28964 AU
retrograde	-2505 Sep 25 j 23:17	4° <b>II</b> 06'20		direct	-2496 Mar 16 j 15:23	14° <b>II</b> 02'31	
opposition	-2505 Dec 14 j 02:24	2° <b>II</b> 57'41	4°01'50	max. Earth dist.	-2496 Jun 26 j 11:46	16° <b>II</b> 00'00	37.14563 AU
min. Earth dist.	-2505 Dec 16 j 22:25	2° <b>II</b> 53'48	37.33470 AU	conjunction	-2496 Jun 29 j 21:05	16° <b>II</b> 06'16	7°30'12
direct	-2504 Mar 04 j 19:33	1° <b>II</b> 46'53		minimum elong	-2496 Jun 29 j 20:49	16° <b>II</b> 06'14	7°30'17
max. Earth dist.	-2504 Jun 13 j 19:47	3° <b>II</b> 35'52	39.20326 AU	retrograde	-2496 Oct 09 j 18:06	18° <b>II</b> 07'46	
conjunction	-2504 Jun 17 j 00:27	3° <b>II</b> 41'22	4°02'26	opposition	-2496 Dec 27 j 01:56	16° <b>II</b> 55'49	8°09'26
minimum elong	-2504 Jun 17 j 00:19	3° <b>II</b> 41'22	4°02'29	min. Earth dist.	-2496 Dec 30 j 02:53	16° <b>II</b> 51'26	35.03735 AU
retrograde	-2504 Sep 26 j 18:01	5° <b>II</b> 34'29		direct	-2495 Mar 18 j 09:52	15° <b>II</b> 41'10	
opposition	-2504 Dec 14 j 18:46	4° <b>II</b> 25'29	4°28'45	max. Earth dist.	-2495 Jun 28 j 11:44	17° <b>II</b> 39'57	36.89148 AU
min. Earth dist.	-2504 Dec 17 j 14:58	4° <b>II</b> 21'34	37.08050 AU	conjunction	-2495 Jul 01 j 20:23	17° <b>II</b> 46'13	7°56'26
direct	-2503 Mar 06 j 10:08	3° <b>II</b> 14'17		minimum elong	-2495 Jul 01 j 20:07	17° <b>II</b> 46'12	7°56'29
max. Earth dist.	-2503 Jun 15 j 13:07	5° <b>II</b> 04'10	38.94691 AU	retrograde	-2495 Oct 11 j 19:10	19° <b>II</b> 48'55	
conjunction	-2503 Jun 18 j 19:15	5° <b>II</b> 09'49	4°27'59	opposition	-2495 Dec 28 j 23:34	18° <b>II</b> 36'36	8°37'20
minimum elong	-2503 Jun 18 j 19:06	5° <b>II</b> 09'48	4°28'02	min. Earth dist.	-2494 Jan 01 j 00:14	18° <b>II</b> 32'12	34.78561 AU
retrograde	-2503 Sep 28 j 13:32	7° <b>II</b> 03'53		direct	-2494 Mar 20 j 08:32	17° <b>II</b> 21'31	
opposition	-2503 Dec 16 j 11:42	5° <b>II</b> 54'31	4°55'51	max. Earth dist.	-2494 Jun 30 j 09:58	19° <b>II</b> 21'27	36.63755 AU
min. Earth dist.	-2503 Dec 19 j 09:47	5° <b>II</b> 50'29	36.82463 AU	conjunction	-2494 Jul 03 j 20:21	19° <b>II</b> 27'55	8°22'38
direct	-2502 Mar 07 j 23:56	4° <b>II</b> 42'53					



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 26

Attention, astronomical year style is used: The year -2494 in astronomical counting style is the year 2495 BCE in historical counting style.

minimum elong	-2494 Jul 03 j 20:03	19°II27'53	8°22'42	conjunction	-2486 Jul 18 j 21:09	4°☾04'01	11°46'39
retrograde	-2494 Oct 13 j 22:09	21°II31'50		minimum elong	-2486 Jul 18 j 20:46	4°☾03'59	11°46'43
opposition	-2494 Dec 30 j 22:05	20°II19'07	9°05'12	retrograde	-2486 Oct 29 j 02:46	6°☾18'17	
min. Earth dist.	-2493 Jan 02 j 23:44	20°II14'38	34.53412 AU	opposition	-2485 Jan 14 j 12:56	5°☾02'07	12°42'14
direct	-2493 Mar 22 j 06:29	19°II03'34		min. Earth dist.	-2485 Jan 17 j 14:28	4°☾57'23	32.56972 AU
max. Earth dist.	-2493 Jul 02 j 11:15	21°II04'51	36.38358 AU	direct	-2485 Apr 05 j 15:32	3°☾42'39	
				max. Earth dist.	-2485 Jul 17 j 18:15	5°☾54'57	34.40632 AU
conjunction	-2493 Jul 05 j 21:10	21°II11'20	8°48'46				
minimum elong	-2493 Jul 05 j 20:52	21°II11'19	8°48'50	conjunction	-2485 Jul 21 j 03:23	6°☾01'55	12°10'39
retrograde	-2493 Oct 15 j 22:03	23°II16'28		minimum elong	-2485 Jul 21 j 03:00	6°☾01'53	12°10'42
opposition	-2492 Jan 01 j 21:22	22°II03'21	9°33'01	retrograde	-2485 Oct 31 j 11:59	8°☾17'35	
min. Earth dist.	-2492 Jan 04 j 23:27	21°II58'49	34.28266 AU	opposition	-2484 Jan 16 j 18:22	7°☾01'02	13°07'44
direct	-2492 Mar 23 j 06:10	20°II47'21		min. Earth dist.	-2484 Jan 19 j 18:55	6°☾56'20	32.33986 AU
max. Earth dist.	-2492 Jul 03 j 11:34	22°II49'50	36.12983 AU	direct	-2484 Apr 06 j 20:13	5°☾41'08	
				max. Earth dist.	-2484 Jul 19 j 02:46	7°☾55'02	34.17560 AU
conjunction	-2492 Jul 06 j 22:30	22°II56'28	9°14'50				
minimum elong	-2492 Jul 06 j 22:11	22°II56'27	9°14'54	conjunction	-2484 Jul 22 j 10:36	8°☾01'57	12°34'07
retrograde	-2492 Oct 17 j 00:09	25°II02'51		minimum elong	-2484 Jul 22 j 10:13	8°☾01'55	12°34'12
opposition	-2491 Jan 02 j 21:18	23°II49'19	10°00'45	retrograde	-2484 Nov 01 j 19:17	10°☾19'04	
min. Earth dist.	-2491 Jan 05 j 23:22	23°II44'44	34.03175 AU	opposition	-2483 Jan 18 j 00:51	9°☾02'08	13°32'39
direct	-2491 Mar 25 j 05:42	22°II32'49		min. Earth dist.	-2483 Jan 21 j 01:33	8°☾57'24	32.11465 AU
max. Earth dist.	-2491 Jul 05 j 13:30	24°II36'36	35.87653 AU	direct	-2483 Apr 09 j 00:43	7°☾41'49	
				max. Earth dist.	-2483 Jul 21 j 11:21	9°☾57'16	33.94955 AU
conjunction	-2491 Jul 09 j 00:32	24°II43'19	9°40'45				
minimum elong	-2491 Jul 09 j 00:13	24°II43'18	9°40'49	conjunction	-2483 Jul 24 j 18:24	10°☾04'12	12°57'00
retrograde	-2491 Oct 19 j 01:28	26°II50'57		minimum elong	-2483 Jul 24 j 18:01	10°☾04'10	12°57'03
opposition	-2490 Jan 04 j 22:04	25°II36'59	10°28'21	retrograde	-2483 Nov 04 j 04:01	12°☾22'46	
min. Earth dist.	-2490 Jan 08 j 01:14	25°II32'18	33.78162 AU	opposition	-2482 Jan 20 j 08:03	11°☾05'28	13°56'55
direct	-2490 Mar 27 j 04:41	24°II19'59		min. Earth dist.	-2482 Jan 23 j 07:21	11°☾00'48	31.89388 AU
max. Earth dist.	-2490 Jul 07 j 16:20	26°II25'06	35.62437 AU	direct	-2482 Apr 11 j 06:43	9°☾44'44	
				max. Earth dist.	-2482 Jul 23 j 20:29	12°☾01'42	33.72758 AU
conjunction	-2490 Jul 11 j 03:17	26°II31'53	10°06'31				
minimum elong	-2490 Jul 11 j 02:57	26°II31'51	10°06'35	conjunction	-2482 Jul 27 j 03:17	12°☾08'41	13°19'14
retrograde	-2490 Oct 21 j 04:28	28°II40'47		minimum elong	-2482 Jul 27 j 02:52	12°☾08'39	13°19'18
opposition	-2489 Jan 06 j 23:18	27°II26'22	10°55'46	retrograde	-2482 Nov 06 j 13:15	14°☾28'42	
min. Earth dist.	-2489 Jan 10 j 01:39	27°II21'43	33.53302 AU	opposition	-2481 Jan 22 j 16:18	13°☾11'01	14°20'30
direct	-2489 Mar 29 j 05:02	26°II08'52		min. Earth dist.	-2481 Jan 25 j 16:09	13°☾06'17	31.67720 AU
max. Earth dist.	-2489 Jul 09 j 19:10	28°II15'17	35.37390 AU	direct	-2481 Apr 13 j 11:14	11°☾49'52	
				max. Earth dist.	-2481 Jul 26 j 07:37	14°☾08'27	33.50979 AU
conjunction	-2489 Jul 13 j 06:46	28°II22'10	10°32'02				
minimum elong	-2489 Jul 13 j 06:25	28°II22'09	10°32'05	conjunction	-2481 Jul 29 j 12:58	14°☾15'22	13°40'46
	-2489 Sep 06 j 19:21	0°☾		minimum elong	-2481 Jul 29 j 12:34	14°☾15'20	13°40'49
retrograde	-2489 Oct 23 j 08:29	0°☾32'23		retrograde	-2481 Nov 09 j 00:02	16°☾36'49	
	-2489 Dec 10 j 04:06	30°☾II		opposition	-2480 Jan 25 j 01:31	15°☾18'45	14°43'18
opposition	-2488 Jan 09 j 01:35	29°II17'31	11°22'55	min. Earth dist.	-2480 Jan 27 j 23:45	15°☾14'07	31.46456 AU
min. Earth dist.	-2488 Jan 12 j 04:50	29°II12'47	33.28673 AU	direct	-2480 Apr 14 j 18:59	13°☾57'11	
direct	-2488 Mar 30 j 05:17	27°II59'30		max. Earth dist.	-2480 Jul 27 j 17:48	16°☾17'13	33.29608 AU
	-2488 Jul 07 j 07:24	0°☾					
max. Earth dist.	-2488 Jul 11 j 00:37	0°☾07'24	35.12611 AU	conjunction	-2480 Jul 30 j 23:15	16°☾24'13	14°01'31
				minimum elong	-2480 Jul 30 j 22:51	16°☾24'11	14°01'35
conjunction	-2488 Jul 14 j 10:45	0°☾14'15	10°57'16	retrograde	-2480 Nov 10 j 12:03	18°☾47'06	
minimum elong	-2488 Jul 14 j 10:23	0°☾14'13	10°57'21	opposition	-2479 Jan 26 j 11:40	17°☾28'38	15°05'16
retrograde	-2488 Oct 24 j 13:43	2°☾25'47		min. Earth dist.	-2479 Jan 29 j 10:04	17°☾23'57	31.25620 AU
opposition	-2487 Jan 10 j 04:34	1°☾10'28	11°49'46	direct	-2479 Apr 17 j 03:03	16°☾06'37	
min. Earth dist.	-2487 Jan 13 j 06:43	1°☾05'46	33.04356 AU	max. Earth dist.	-2479 Jul 30 j 07:12	18°☾28'18	33.08686 AU
	-2487 Mar 08 j 16:59	30°☾II					
direct	-2487 Apr 01 j 08:33	29°II51'56		conjunction	-2479 Aug 02 j 10:33	18°☾35'10	14°21'26
	-2487 Apr 24 j 19:32	0°☾		minimum elong	-2479 Aug 02 j 10:10	18°☾35'08	14°21'28
max. Earth dist.	-2487 Jul 13 j 04:46	2°☾01'12	34.88180 AU	retrograde	-2479 Nov 13 j 00:27	20°☾59'26	
				opposition	-2478 Jan 28 j 22:35	19°☾40'34	15°26'18
conjunction	-2487 Jul 16 j 15:29	2°☾08'10	11°22'10	min. Earth dist.	-2478 Jan 31 j 19:44	19°☾35'57	31.05233 AU
minimum elong	-2487 Jul 16 j 15:07	2°☾08'08	11°22'13	direct	-2478 Apr 19 j 14:30	18°☾18'07	
retrograde	-2487 Oct 26 j 20:24	4°☾21'03		max. Earth dist.	-2478 Aug 01 j 19:07	20°☾41'12	32.88255 AU
opposition	-2486 Jan 12 j 08:14	3°☾05'17	12°16'14				
min. Earth dist.	-2486 Jan 15 j 10:28	3°☾00'34	32.80444 AU	conjunction	-2478 Aug 04 j 22:32	20°☾48'09	14°40'25
direct	-2486 Apr 03 j 10:18	1°☾46'17		minimum elong	-2478 Aug 04 j 22:09	20°☾48'06	14°40'29
max. Earth dist.	-2486 Jul 15 j 12:02	3°☾57'08	34.64171 AU	retrograde	-2478 Nov 15 j 14:33	23°☾13'47	



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 27

Attention, astronomical year style is used: The year -2477 in astronomical counting style is the year 2478 BCE in historical counting style.

opposition	-2477 Jan 31 j 10:27	21° $\mathfrak{E}$ 54'30	15°46'19	minimum elong	-2470 Aug 23 j 22:58	9° $\mathfrak{Q}$ 39'30	16°28'20
min. Earth dist.	-2477 Feb 03 j 06:50	21° $\mathfrak{E}$ 49'54	30.85370 AU	retrograde	-2470 Dec 05 j 00:56	12° $\mathfrak{Q}$ 15'01	
direct	-2477 Apr 22 j 00:36	20° $\mathfrak{E}$ 31'37		opposition	-2469 Feb 19 j 16:28	10° $\mathfrak{Q}$ 53'06	17°38'01
max. Earth dist.	-2477 Aug 04 j 10:13	22° $\mathfrak{E}$ 56'18	32.68377 AU	min. Earth dist.	-2469 Feb 21 j 22:19	10° $\mathfrak{Q}$ 49'21	29.53361 AU
				direct	-2469 May 10 j 21:31	9° $\mathfrak{Q}$ 27'39	
conjunction	-2477 Aug 07 j 11:18	23° $\mathfrak{E}$ 03'04	14°58'24	max. Earth dist.	-2469 Aug 24 j 08:32	12° $\mathfrak{Q}$ 03'27	31.37985 AU
minimum elong	-2477 Aug 07 j 10:56	23° $\mathfrak{E}$ 03'02	14°58'27				
retrograde	-2477 Nov 18 j 04:16	25° $\mathfrak{E}$ 30'04		conjunction	-2469 Aug 26 j 17:03	12° $\mathfrak{Q}$ 09'02	16°35'04
opposition	-2476 Feb 02 j 23:19	24° $\mathfrak{E}$ 10'22	16°05'14	minimum elong	-2469 Aug 26 j 16:52	12° $\mathfrak{Q}$ 09'01	16°35'06
min. Earth dist.	-2476 Feb 05 j 18:40	24° $\mathfrak{E}$ 05'48	30.66081 AU	retrograde	-2469 Dec 07 j 21:07	14° $\mathfrak{Q}$ 45'35	
direct	-2476 Apr 23 j 13:47	22° $\mathfrak{E}$ 47'03		opposition	-2468 Feb 22 j 11:55	13° $\mathfrak{Q}$ 23'25	17°44'40
max. Earth dist.	-2476 Aug 06 j 00:24	25° $\mathfrak{E}$ 13'08	32.49147 AU	min. Earth dist.	-2468 Feb 24 j 15:57	13° $\mathfrak{Q}$ 19'48	29.40680 AU
				direct	-2468 May 12 j 14:11	11° $\mathfrak{Q}$ 57'47	
conjunction	-2476 Aug 09 j 00:37	25° $\mathfrak{E}$ 19'54	15°15'16	max. Earth dist.	-2468 Aug 26 j 06:41	14° $\mathfrak{Q}$ 34'51	31.25619 AU
minimum elong	-2476 Aug 09 j 00:15	25° $\mathfrak{E}$ 19'52	15°15'20				
retrograde	-2476 Nov 19 j 20:46	27° $\mathfrak{E}$ 48'12		conjunction	-2468 Aug 28 j 11:40	14° $\mathfrak{Q}$ 40'07	16°40'10
opposition	-2475 Feb 04 j 12:52	26° $\mathfrak{E}$ 28'05	16°22'55	minimum elong	-2468 Aug 28 j 11:33	14° $\mathfrak{Q}$ 40'07	16°40'13
min. Earth dist.	-2475 Feb 07 j 06:13	26° $\mathfrak{E}$ 23'39	30.47482 AU		-2468 Sep 05 j 20:00	15° $\mathfrak{Q}$	
direct	-2475 Apr 26 j 03:21	25° $\mathfrak{E}$ 04'22		retrograde	-2468 Dec 09 j 16:29	17° $\mathfrak{Q}$ 17'36	
max. Earth dist.	-2475 Aug 08 j 16:55	27° $\mathfrak{E}$ 31'59	32.30643 AU	opposition	-2467 Feb 24 j 08:00	15° $\mathfrak{Q}$ 55'13	17°49'28
				min. Earth dist.	-2467 Feb 26 j 09:53	15° $\mathfrak{Q}$ 51'44	29.28818 AU
conjunction	-2475 Aug 11 j 14:42	27° $\mathfrak{E}$ 38'35	15°30'56		-2467 Apr 01 j 00:53	15° $\mathfrak{R}$ $\mathfrak{Q}$	
minimum elong	-2475 Aug 11 j 14:22	27° $\mathfrak{E}$ 38'33	15°30'59	direct	-2467 May 15 j 10:28	14° $\mathfrak{Q}$ 29'25	
	-2475 Oct 31 j 17:30	0° $\mathfrak{Q}$			-2467 Jun 27 j 11:05	15° $\mathfrak{Q}$	
retrograde	-2475 Nov 22 j 10:47	0° $\mathfrak{Q}$ 08'09		max. Earth dist.	-2467 Aug 29 j 02:57	17° $\mathfrak{Q}$ 07'26	31.14120 AU
	-2475 Dec 14 j 10:36	30° $\mathfrak{R}$ $\mathfrak{E}$					
opposition	-2474 Feb 07 j 03:28	28° $\mathfrak{E}$ 47'40	16°39'16	conjunction	-2467 Aug 31 j 06:34	17° $\mathfrak{Q}$ 12'35	16°43'31
min. Earth dist.	-2474 Feb 09 j 19:57	28° $\mathfrak{E}$ 43'15	30.29632 AU	minimum elong	-2467 Aug 31 j 06:28	17° $\mathfrak{Q}$ 12'35	16°43'34
direct	-2474 Apr 28 j 16:34	27° $\mathfrak{E}$ 23'33		retrograde	-2467 Dec 12 j 14:01	19° $\mathfrak{Q}$ 50'55	
max. Earth dist.	-2474 Aug 11 j 09:35	29° $\mathfrak{E}$ 52'37	32.12963 AU	opposition	-2466 Feb 27 j 04:39	18° $\mathfrak{Q}$ 28'19	17°52'23
				min. Earth dist.	-2466 Mar 01 j 03:54	18° $\mathfrak{Q}$ 25'01	29.17804 AU
conjunction	-2474 Aug 14 j 05:25	29° $\mathfrak{E}$ 59'05	15°45'19	direct	-2466 May 18 j 06:29	17° $\mathfrak{Q}$ 02'21	
minimum elong	-2474 Aug 14 j 05:06	29° $\mathfrak{E}$ 59'03	15°45'22	max. Earth dist.	-2466 Sep 01 j 01:59	19° $\mathfrak{Q}$ 41'26	31.03496 AU
	-2474 Aug 14 j 15:02	0° $\mathfrak{Q}$					
retrograde	-2474 Nov 25 j 03:10	2° $\mathfrak{Q}$ 29'55		conjunction	-2466 Sep 03 j 02:04	19° $\mathfrak{Q}$ 46'15	16°45'06
opposition	-2473 Feb 09 j 18:42	1° $\mathfrak{Q}$ 09'04	16°54'12	minimum elong	-2466 Sep 03 j 02:01	19° $\mathfrak{Q}$ 46'15	16°45'09
min. Earth dist.	-2473 Feb 12 j 08:23	1° $\mathfrak{Q}$ 04'50	30.12618 AU	retrograde	-2466 Dec 15 j 09:37	22° $\mathfrak{Q}$ 25'20	
	-2473 Mar 30 j 20:42	30° $\mathfrak{R}$ $\mathfrak{E}$		opposition	-2465 Mar 02 j 01:57	21° $\mathfrak{Q}$ 02'32	17°53'21
direct	-2473 May 01 j 07:21	29° $\mathfrak{E}$ 44'37		min. Earth dist.	-2465 Mar 03 j 23:25	20° $\mathfrak{Q}$ 59'21	29.07645 AU
	-2473 Jun 01 j 01:28	0° $\mathfrak{Q}$		direct	-2465 May 21 j 02:52	19° $\mathfrak{Q}$ 36'26	
max. Earth dist.	-2473 Aug 14 j 03:12	2° $\mathfrak{Q}$ 15'07	31.96156 AU	max. Earth dist.	-2465 Sep 03 j 23:37	22° $\mathfrak{Q}$ 16'17	30.93807 AU
conjunction	-2473 Aug 16 j 20:57	2° $\mathfrak{Q}$ 21'26	15°58'19	conjunction	-2465 Sep 05 j 21:40	22° $\mathfrak{Q}$ 20'56	16°44'50
minimum elong	-2473 Aug 16 j 20:39	2° $\mathfrak{Q}$ 21'24	15°58'21	minimum elong	-2465 Sep 05 j 21:38	22° $\mathfrak{Q}$ 20'56	16°44'52
retrograde	-2473 Nov 27 j 19:48	4° $\mathfrak{Q}$ 53'30		retrograde	-2465 Dec 18 j 08:21	25° $\mathfrak{Q}$ 00'39	
opposition	-2472 Feb 12 j 11:03	3° $\mathfrak{Q}$ 32'20	17°07'37	opposition	-2464 Mar 03 j 23:37	23° $\mathfrak{Q}$ 37'39	17°52'19
min. Earth dist.	-2472 Feb 14 j 23:39	3° $\mathfrak{Q}$ 28'09	29.96488 AU	min. Earth dist.	-2464 Mar 05 j 17:39	23° $\mathfrak{Q}$ 34'42	28.98417 AU
direct	-2472 May 02 j 20:33	2° $\mathfrak{Q}$ 07'35		direct	-2464 May 23 j 01:05	22° $\mathfrak{Q}$ 11'25	
max. Earth dist.	-2472 Aug 15 j 22:03	4° $\mathfrak{Q}$ 39'33	31.80277 AU	max. Earth dist.	-2464 Sep 05 j 23:08	24° $\mathfrak{Q}$ 52'07	30.85094 AU
conjunction	-2472 Aug 18 j 12:55	4° $\mathfrak{Q}$ 45'38	16°09'51	conjunction	-2464 Sep 07 j 17:30	24° $\mathfrak{Q}$ 56'24	16°42'42
minimum elong	-2472 Aug 18 j 12:39	4° $\mathfrak{Q}$ 45'37	16°09'54	minimum elong	-2464 Sep 07 j 17:32	24° $\mathfrak{Q}$ 56'24	16°42'45
retrograde	-2472 Nov 29 j 12:57	7° $\mathfrak{Q}$ 18'54		retrograde	-2464 Dec 20 j 04:29	27° $\mathfrak{Q}$ 36'40	
opposition	-2471 Feb 14 j 04:03	5° $\mathfrak{Q}$ 57'27	17°19'27	opposition	-2463 Mar 06 j 21:49	26° $\mathfrak{Q}$ 13'29	17°49'14
min. Earth dist.	-2471 Feb 16 j 13:37	5° $\mathfrak{Q}$ 53'28	29.81246 AU	min. Earth dist.	-2463 Mar 08 j 14:03	26° $\mathfrak{Q}$ 10'39	28.90168 AU
direct	-2471 May 05 j 12:39	4° $\mathfrak{Q}$ 32'26		direct	-2463 May 25 j 22:42	24° $\mathfrak{Q}$ 47'09	
max. Earth dist.	-2471 Aug 18 j 16:27	7° $\mathfrak{Q}$ 05'42	31.65298 AU	max. Earth dist.	-2463 Sep 08 j 21:58	27° $\mathfrak{Q}$ 28'28	30.77445 AU
conjunction	-2471 Aug 21 j 05:41	7° $\mathfrak{Q}$ 11'41	16°19'51	conjunction	-2463 Sep 10 j 13:26	27° $\mathfrak{Q}$ 32'29	16°38'39
minimum elong	-2471 Aug 21 j 05:27	7° $\mathfrak{Q}$ 11'39	16°19'54	minimum elong	-2463 Sep 10 j 13:29	27° $\mathfrak{Q}$ 32'29	16°38'40
retrograde	-2471 Dec 02 j 06:35	9° $\mathfrak{Q}$ 46'06			-2463 Nov 26 j 01:23	0° $\mathfrak{R}$ $\mathfrak{P}$	
opposition	-2470 Feb 16 j 21:47	8° $\mathfrak{Q}$ 24'24	17°29'36	retrograde	-2463 Dec 23 j 02:02	0° $\mathfrak{R}$ $\mathfrak{P}$ 13'10	
min. Earth dist.	-2470 Feb 19 j 06:11	8° $\mathfrak{Q}$ 20'29	29.66884 AU		-2462 Jan 19 j 15:59	30° $\mathfrak{R}$ $\mathfrak{Q}$	
direct	-2470 May 08 j 03:42	6° $\mathfrak{Q}$ 59'09		opposition	-2462 Mar 09 j 20:00	28° $\mathfrak{Q}$ 49'50	17°44'04
max. Earth dist.	-2470 Aug 21 j 13:16	9° $\mathfrak{Q}$ 33'50	31.51212 AU	min. Earth dist.	-2462 Mar 11 j 08:07	28° $\mathfrak{Q}$ 47'17	28.82978 AU
				direct	-2462 May 28 j 21:28	27° $\mathfrak{Q}$ 23'25	
conjunction	-2470 Aug 23 j 23:10	9° $\mathfrak{Q}$ 39'31	16°28'16		-2462 Sep 09 j 16:57	0° $\mathfrak{R}$ $\mathfrak{P}$	



## Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 28

Attention, astronomical year style is used: The year -2462 in astronomical counting style is the year 2463 BCE in historical counting style.

max. Earth dist.	-2462 Sep 11 j 21:37	0° $\mathring{\mu}$ 05'21	30.70915 AU	max. Earth dist.	-2454 Oct 03 j 15:43	21° $\mathring{\mu}$ 01'32	30.61436 AU
				retrograde	-2453 Jan 15 j 18:34	23° $\mathring{\mu}$ 42'41	
conjunction	-2462 Sep 13 j 09:35	0° $\mathring{\mu}$ 09'00	16°32'39	opposition	-2453 Apr 03 j 10:43	22° $\mathring{\mu}$ 19'24	15°24'30
minimum elong	-2462 Sep 13 j 09:41	0° $\mathring{\mu}$ 09'01	16°32'41	min. Earth dist.	-2453 Apr 03 j 16:55	22° $\mathring{\mu}$ 18'59	28.69891 AU
retrograde	-2462 Dec 25 j 23:01	2° $\mathring{\mu}$ 50'02		direct	-2453 Jun 22 j 06:14	20° $\mathring{\mu}$ 54'04	
opposition	-2461 Mar 12 j 18:50	1° $\mathring{\mu}$ 26'35	17°36'47				
min. Earth dist.	-2461 Mar 14 j 04:41	1° $\mathring{\mu}$ 24'11	28.76923 AU	conjunction	-2453 Oct 06 j 18:44	23° $\mathring{\mu}$ 36'50	14°13'17
direct	-2461 May 31 j 18:51	0° $\mathring{\mu}$ 00'09		minimum elong	-2453 Oct 06 j 19:06	23° $\mathring{\mu}$ 36'53	14°13'18
max. Earth dist.	-2461 Sep 14 j 21:27	2° $\mathring{\mu}$ 42'34	30.65596 AU	max. Earth dist.	-2453 Oct 06 j 14:40	23° $\mathring{\mu}$ 36'26	30.65151 AU
				retrograde	-2452 Jan 18 j 12:49	26° $\mathring{\mu}$ 16'36	
conjunction	-2461 Sep 16 j 05:36	2° $\mathring{\mu}$ 45'51	16°24'40	opposition	-2452 Apr 05 j 09:07	24° $\mathring{\mu}$ 53'24	14°59'37
minimum elong	-2461 Sep 16 j 05:44	2° $\mathring{\mu}$ 45'51	16°24'41	min. Earth dist.	-2452 Apr 05 j 12:59	24° $\mathring{\mu}$ 53'08	28.73757 AU
retrograde	-2461 Dec 28 j 20:43	5° $\mathring{\mu}$ 27'08		direct	-2452 Jun 24 j 05:01	23° $\mathring{\mu}$ 28'17	
opposition	-2460 Mar 14 j 17:45	4° $\mathring{\mu}$ 03'35	17°27'21				
min. Earth dist.	-2460 Mar 15 j 23:07	4° $\mathring{\mu}$ 01'31	28.72052 AU	conjunction	-2452 Oct 08 j 12:57	26° $\mathring{\mu}$ 10'11	13°49'17
direct	-2460 Jun 02 j 18:04	2° $\mathring{\mu}$ 37'11		minimum elong	-2452 Oct 08 j 13:20	26° $\mathring{\mu}$ 10'13	13°49'17
max. Earth dist.	-2460 Sep 16 j 20:52	5° $\mathring{\mu}$ 19'58	30.61503 AU	max. Earth dist.	-2452 Oct 08 j 11:29	26° $\mathring{\mu}$ 10'02	30.69900 AU
				retrograde	-2451 Jan 20 j 08:20	28° $\mathring{\mu}$ 49'18	
conjunction	-2460 Sep 18 j 01:46	5° $\mathring{\mu}$ 22'54	16°14'43	opposition	-2451 Apr 08 j 06:42	27° $\mathring{\mu}$ 26'12	14°33'07
minimum elong	-2460 Sep 18 j 01:57	5° $\mathring{\mu}$ 22'56	16°14'45	min. Earth dist.	-2451 Apr 08 j 06:13	27° $\mathring{\mu}$ 26'14	28.78648 AU
retrograde	-2460 Dec 30 j 16:37	8° $\mathring{\mu}$ 04'21		direct	-2451 Jun 27 j 03:28	26° $\mathring{\mu}$ 01'18	
opposition	-2459 Mar 17 j 16:45	6° $\mathring{\mu}$ 40'46	17°15'47				
min. Earth dist.	-2459 Mar 18 j 19:31	6° $\mathring{\mu}$ 38'53	28.68393 AU	conjunction	-2451 Oct 11 j 06:40	28° $\mathring{\mu}$ 42'16	13°23'51
direct	-2459 Jun 05 j 15:15	5° $\mathring{\mu}$ 14'26		minimum elong	-2451 Oct 11 j 07:03	28° $\mathring{\mu}$ 42'18	13°23'51
				max. Earth dist.	-2451 Oct 11 j 09:02	28° $\mathring{\mu}$ 42'30	30.75688 AU
conjunction	-2459 Sep 20 j 21:55	8° $\mathring{\mu}$ 00'05	16°02'49		-2451 Nov 14 j 00:45	0° $\mathring{\mu}$	
minimum elong	-2459 Sep 20 j 22:07	8° $\mathring{\mu}$ 00'06	16°02'51	retrograde	-2450 Jan 23 j 02:03	1° $\mathring{\mu}$ 20'39	
max. Earth dist.	-2459 Sep 19 j 21:19	7° $\mathring{\mu}$ 57'34	30.58653 AU		-2450 Apr 09 j 18:11	30° $\mathring{\mu}$	
retrograde	-2458 Jan 02 j 13:17	10° $\mathring{\mu}$ 41'35		opposition	-2450 Apr 11 j 04:06	29° $\mathring{\mu}$ 57'40	14°05'05
opposition	-2458 Mar 20 j 15:51	9° $\mathring{\mu}$ 18'01	17°02'08	min. Earth dist.	-2450 Apr 11 j 01:15	29° $\mathring{\mu}$ 57'52	28.84596 AU
min. Earth dist.	-2458 Mar 21 j 14:39	9° $\mathring{\mu}$ 16'24	28.65907 AU	direct	-2450 Jun 30 j 01:20	28° $\mathring{\mu}$ 33'01	
direct	-2458 Jun 08 j 14:23	7° $\mathring{\mu}$ 51'47			-2450 Sep 12 j 07:41	0° $\mathring{\mu}$	
conjunction	-2458 Sep 23 j 17:51	10° $\mathring{\mu}$ 37'15	15°49'01	conjunction	-2450 Oct 13 j 23:37	1° $\mathring{\mu}$ 12'56	12°57'02
minimum elong	-2458 Sep 23 j 18:06	10° $\mathring{\mu}$ 37'16	15°49'02	minimum elong	-2450 Oct 14 j 00:02	1° $\mathring{\mu}$ 12'59	12°57'01
max. Earth dist.	-2458 Sep 22 j 20:03	10° $\mathring{\mu}$ 35'01	30.56985 AU	max. Earth dist.	-2450 Oct 14 j 05:20	1° $\mathring{\mu}$ 13'31	30.82575 AU
retrograde	-2457 Jan 05 j 10:38	13° $\mathring{\mu}$ 18'43		retrograde	-2449 Jan 25 j 20:32	3° $\mathring{\mu}$ 50'32	
opposition	-2457 Mar 23 j 15:03	11° $\mathring{\mu}$ 55'10	16°46'26	opposition	-2449 Apr 14 j 00:51	2° $\mathring{\mu}$ 27'41	13°35'38
min. Earth dist.	-2457 Mar 24 j 10:46	11° $\mathring{\mu}$ 53'47	28.64576 AU	min. Earth dist.	-2449 Apr 13 j 17:29	2° $\mathring{\mu}$ 28'12	28.91650 AU
direct	-2457 Jun 11 j 11:12	10° $\mathring{\mu}$ 29'05		direct	-2449 Jul 03 j 00:14	1° $\mathring{\mu}$ 03'19	
conjunction	-2457 Sep 26 j 13:49	13° $\mathring{\mu}$ 14'14	15°33'20	conjunction	-2449 Oct 16 j 16:04	3° $\mathring{\mu}$ 42'10	12°28'56
minimum elong	-2457 Sep 26 j 14:05	13° $\mathring{\mu}$ 14'16	15°33'21	minimum elong	-2449 Oct 16 j 16:28	3° $\mathring{\mu}$ 42'12	12°28'56
max. Earth dist.	-2457 Sep 25 j 20:30	13° $\mathring{\mu}$ 12'28	30.56479 AU	max. Earth dist.	-2449 Oct 17 j 01:22	3° $\mathring{\mu}$ 43'05	30.90588 AU
retrograde	-2456 Jan 08 j 05:50	15° $\mathring{\mu}$ 55'35		retrograde	-2448 Jan 28 j 12:33	6° $\mathring{\mu}$ 18'55	
opposition	-2456 Mar 25 j 14:16	14° $\mathring{\mu}$ 32'05	16°28'46	opposition	-2448 Apr 15 j 21:07	4° $\mathring{\mu}$ 56'15	13°04'49
min. Earth dist.	-2456 Mar 26 j 06:37	14° $\mathring{\mu}$ 30'56	28.64341 AU	min. Earth dist.	-2448 Apr 15 j 10:53	4° $\mathring{\mu}$ 56'57	28.99863 AU
direct	-2456 Jun 13 j 11:05	13° $\mathring{\mu}$ 06'10		direct	-2448 Jul 04 j 19:44	3° $\mathring{\mu}$ 32'11	
conjunction	-2456 Sep 28 j 09:21	15° $\mathring{\mu}$ 50'53	15°15'52	conjunction	-2448 Oct 18 j 07:51	6° $\mathring{\mu}$ 09'54	11°59'38
minimum elong	-2456 Sep 28 j 09:40	15° $\mathring{\mu}$ 50'55	15°15'52	minimum elong	-2448 Oct 18 j 08:16	6° $\mathring{\mu}$ 09'56	11°59'36
max. Earth dist.	-2456 Sep 27 j 18:25	15° $\mathring{\mu}$ 49'22	30.57076 AU	max. Earth dist.	-2448 Oct 18 j 21:08	6° $\mathring{\mu}$ 11'13	30.99773 AU
retrograde	-2455 Jan 10 j 02:56	18° $\mathring{\mu}$ 31'59		retrograde	-2447 Jan 30 j 04:11	8° $\mathring{\mu}$ 45'45	
opposition	-2455 Mar 28 j 13:17	17° $\mathring{\mu}$ 08'33	16°09'09	opposition	-2447 Apr 18 j 16:38	7° $\mathring{\mu}$ 23'18	12°32'47
min. Earth dist.	-2455 Mar 29 j 02:05	17° $\mathring{\mu}$ 07'39	28.65176 AU	min. Earth dist.	-2447 Apr 18 j 02:14	7° $\mathring{\mu}$ 24'17	29.09219 AU
direct	-2455 Jun 16 j 08:42	15° $\mathring{\mu}$ 42'49		direct	-2447 Jul 07 j 16:57	5° $\mathring{\mu}$ 59'36	
conjunction	-2455 Oct 01 j 04:55	18° $\mathring{\mu}$ 27'00	14°56'39	conjunction	-2447 Oct 20 j 22:59	8° $\mathring{\mu}$ 36'09	11°29'13
minimum elong	-2455 Oct 01 j 05:14	18° $\mathring{\mu}$ 27'02	14°56'39	minimum elong	-2447 Oct 20 j 23:23	8° $\mathring{\mu}$ 36'11	11°29'13
max. Earth dist.	-2455 Sep 30 j 18:18	18° $\mathring{\mu}$ 25'55	30.58737 AU	max. Earth dist.	-2447 Oct 21 j 15:07	8° $\mathring{\mu}$ 37'44	31.10088 AU
retrograde	-2454 Jan 12 j 21:49	21° $\mathring{\mu}$ 07'45		retrograde	-2446 Feb 01 j 20:20	11° $\mathring{\mu}$ 11'05	
opposition	-2454 Mar 31 j 12:07	19° $\mathring{\mu}$ 44'24	15°47'43	opposition	-2446 Apr 21 j 11:34	9° $\mathring{\mu}$ 48'53	11°59'36
min. Earth dist.	-2454 Mar 31 j 22:20	19° $\mathring{\mu}$ 43'41	28.67025 AU	min. Earth dist.	-2446 Apr 20 j 17:50	9° $\mathring{\mu}$ 50'05	29.19708 AU
direct	-2454 Jun 19 j 07:08	18° $\mathring{\mu}$ 18'51		direct	-2446 Jul 10 j 10:48	8° $\mathring{\mu}$ 25'34	
conjunction	-2454 Oct 04 j 00:01	21° $\mathring{\mu}$ 02'23	14°35'46	conjunction	-2446 Oct 23 j 13:37	11° $\mathring{\mu}$ 00'54	10°57'50
minimum elong	-2454 Oct 04 j 00:23	21° $\mathring{\mu}$ 02'25	14°35'46	minimum elong	-2446 Oct 23 j 14:01	11° $\mathring{\mu}$ 00'57	10°57'48



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 29

Attention, astronomical year style is used: The year -2446 in astronomical counting style is the year 2447 BCE in historical counting style.

max. Earth dist.	-2446 Oct 24 j 09:57	11° <u>♂</u> 02'54	31.21510 AU	min. Earth dist.	-2437 May 11 j 12:49	0° <u>♂</u> 27'37	30.54141 AU
retrograde	-2445 Feb 04 j 09:37	13° <u>♂</u> 34'53		opposition	-2437 May 13 j 07:39	0° <u>♂</u> 24'51	6°29'51
min. Earth dist.	-2445 Apr 23 j 09:01	12° <u>♂</u> 14'23	29.31259 AU		-2437 May 29 j 14:25	30° <u>♂</u> 05'10	
opposition	-2445 Apr 24 j 06:00	12° <u>♂</u> 12'58	11°25'26	direct	-2437 Aug 01 j 10:08	29° <u>♂</u> 05'10	
direct	-2445 Jul 13 j 06:26	10° <u>♂</u> 50'04			-2437 Sep 30 j 07:39	0° <u>♂</u>	
conjunction	-2445 Oct 26 j 03:21	13° <u>♂</u> 24'09	10°25'33	conjunction	-2437 Nov 12 j 18:14	1° <u>♂</u> 28'17	5°48'06
minimum elong	-2445 Oct 26 j 03:44	13° <u>♂</u> 24'11	10°25'33	minimum elong	-2437 Nov 12 j 18:28	1° <u>♂</u> 28'18	5°48'04
max. Earth dist.	-2445 Oct 27 j 01:56	13° <u>♂</u> 26'21	31.33954 AU	max. Earth dist.	-2437 Nov 14 j 14:39	1° <u>♂</u> 32'20	32.62371 AU
retrograde	-2444 Feb 06 j 23:54	15° <u>♂</u> 57'08		retrograde	-2436 Feb 24 j 14:49	3° <u>♂</u> 52'06	
opposition	-2444 Apr 25 j 23:45	14° <u>♂</u> 35'31	10°50'23	min. Earth dist.	-2436 May 12 j 22:02	2° <u>♂</u> 35'42	30.72806 AU
min. Earth dist.	-2444 Apr 24 j 23:09	14° <u>♂</u> 37'10	29.43821 AU	opposition	-2436 May 14 j 19:21	2° <u>♂</u> 32'47	5°51'38
direct	-2444 Jul 14 j 22:46	13° <u>♂</u> 13'02		direct	-2436 Aug 02 j 23:51	1° <u>♂</u> 13'30	
conjunction	-2444 Oct 27 j 16:45	15° <u>♂</u> 45'51	9°52'31	conjunction	-2436 Nov 14 j 01:43	3° <u>♂</u> 35'12	5°12'19
minimum elong	-2444 Oct 27 j 17:08	15° <u>♂</u> 45'53	9°52'29	minimum elong	-2436 Nov 14 j 01:56	3° <u>♂</u> 35'13	5°12'16
max. Earth dist.	-2444 Oct 28 j 19:26	15° <u>♂</u> 48'25	31.47347 AU	max. Earth dist.	-2436 Nov 15 j 23:40	3° <u>♂</u> 39'22	32.81632 AU
retrograde	-2443 Feb 08 j 12:06	18° <u>♂</u> 17'48		retrograde	-2435 Feb 25 j 22:03	5° <u>♂</u> 57'49	
opposition	-2443 Apr 28 j 16:42	16° <u>♂</u> 56'29	10°14'34	min. Earth dist.	-2435 May 15 j 05:44	4° <u>♂</u> 41'54	30.92239 AU
min. Earth dist.	-2443 Apr 27 j 13:59	16° <u>♂</u> 58'16	29.57292 AU	opposition	-2435 May 17 j 06:06	4° <u>♂</u> 38'48	5°13'24
direct	-2443 Jul 17 j 15:21	15° <u>♂</u> 34'26		direct	-2435 Aug 05 j 10:45	3° <u>♂</u> 19'56	
conjunction	-2443 Oct 30 j 05:21	18° <u>♂</u> 05'56	9°18'49	conjunction	-2435 Nov 16 j 08:39	5° <u>♂</u> 40'16	4°36'34
minimum elong	-2443 Oct 30 j 05:42	18° <u>♂</u> 05'58	9°18'48	minimum elong	-2435 Nov 16 j 08:50	5° <u>♂</u> 40'17	4°36'32
max. Earth dist.	-2443 Oct 31 j 09:49	18° <u>♂</u> 08'39	31.61605 AU	max. Earth dist.	-2435 Nov 18 j 10:04	5° <u>♂</u> 44'42	33.01626 AU
retrograde	-2442 Feb 11 j 01:56	20° <u>♂</u> 36'49		retrograde	-2434 Feb 28 j 03:15	8° <u>♂</u> 01'42	
min. Earth dist.	-2442 Apr 30 j 02:31	19° <u>♂</u> 17'50	29.71612 AU	min. Earth dist.	-2434 May 17 j 14:17	6° <u>♂</u> 46'12	31.12401 AU
opposition	-2442 May 01 j 09:02	19° <u>♂</u> 15'48	9°38'07	opposition	-2434 May 19 j 16:18	6° <u>♂</u> 43'01	4°35'14
direct	-2442 Jul 20 j 07:18	17° <u>♂</u> 54'10		direct	-2434 Aug 07 j 21:46	5° <u>♂</u> 24'35	
conjunction	-2442 Nov 01 j 17:19	20° <u>♂</u> 24'19	8°44'33	conjunction	-2434 Nov 18 j 14:37	7° <u>♂</u> 43'32	4°00'53
minimum elong	-2442 Nov 01 j 17:40	20° <u>♂</u> 24'21	8°44'31	minimum elong	-2434 Nov 18 j 14:47	7° <u>♂</u> 43'33	4°00'50
max. Earth dist.	-2442 Nov 03 j 01:22	20° <u>♂</u> 27'22	31.76650 AU	max. Earth dist.	-2434 Nov 20 j 17:26	7° <u>♂</u> 48'04	33.22314 AU
retrograde	-2441 Feb 13 j 13:36	22° <u>♂</u> 54'06		retrograde	-2433 Mar 02 j 09:59	10° <u>♂</u> 03'50	
min. Earth dist.	-2441 May 02 j 16:39	21° <u>♂</u> 35'31	29.86702 AU	min. Earth dist.	-2433 May 19 j 20:13	8° <u>♂</u> 48'53	31.33256 AU
opposition	-2441 May 04 j 00:51	21° <u>♂</u> 33'23	9°01'08	opposition	-2433 May 22 j 01:42	8° <u>♂</u> 45'30	3°57'13
direct	-2441 Jul 22 j 23:29	20° <u>♂</u> 12'11		direct	-2433 Aug 10 j 06:34	7° <u>♂</u> 27'30	
conjunction	-2441 Nov 04 j 04:38	22° <u>♂</u> 40'57	8°09'50	conjunction	-2433 Nov 20 j 20:08	9° <u>♂</u> 45'08	3°25'20
minimum elong	-2441 Nov 04 j 04:57	22° <u>♂</u> 40'59	8°09'49	minimum elong	-2433 Nov 20 j 20:16	9° <u>♂</u> 45'09	3°25'19
max. Earth dist.	-2441 Nov 05 j 14:27	22° <u>♂</u> 44'09	31.92433 AU	max. Earth dist.	-2433 Nov 23 j 02:01	9° <u>♂</u> 49'54	33.43627 AU
retrograde	-2440 Feb 16 j 02:04	25° <u>♂</u> 09'35		retrograde	-2432 Mar 03 j 15:15	12° <u>♂</u> 04'17	
min. Earth dist.	-2440 May 04 j 03:53	23° <u>♂</u> 51'30	30.02517 AU	min. Earth dist.	-2432 May 21 j 03:49	10° <u>♂</u> 49'45	31.54728 AU
opposition	-2440 May 05 j 15:39	23° <u>♂</u> 49'10	8°23'43	opposition	-2432 May 23 j 10:21	10° <u>♂</u> 46'19	3°19'25
direct	-2440 Jul 24 j 14:33	22° <u>♂</u> 28'20		direct	-2432 Aug 11 j 14:36	9° <u>♂</u> 28'46	
conjunction	-2440 Nov 05 j 15:12	24° <u>♂</u> 55'44	7°34'45	conjunction	-2432 Nov 22 j 00:58	11° <u>♂</u> 45'07	2°50'00
minimum elong	-2440 Nov 05 j 15:31	24° <u>♂</u> 55'46	7°34'43	minimum elong	-2432 Nov 22 j 01:05	11° <u>♂</u> 45'07	2°49'57
max. Earth dist.	-2440 Nov 07 j 03:47	24° <u>♂</u> 59'09	32.08893 AU	max. Earth dist.	-2432 Nov 24 j 08:10	11° <u>♂</u> 49'57	33.65500 AU
retrograde	-2439 Feb 17 j 12:33	27° <u>♂</u> 23'11		retrograde	-2431 Mar 05 j 21:31	14° <u>♂</u> 03'08	
min. Earth dist.	-2439 May 06 j 16:30	26° <u>♂</u> 05'28	30.19024 AU	min. Earth dist.	-2431 May 23 j 08:52	12° <u>♂</u> 49'07	31.76726 AU
opposition	-2439 May 08 j 05:50	26° <u>♂</u> 03'02	7°45'58	opposition	-2431 May 25 j 18:12	12° <u>♂</u> 45'32	2°41'54
direct	-2439 Jul 27 j 04:57	24° <u>♂</u> 42'36		direct	-2431 Aug 13 j 21:55	11° <u>♂</u> 28'26	
conjunction	-2439 Nov 08 j 01:01	27° <u>♂</u> 08'34	6°59'22	conjunction	-2431 Nov 24 j 05:06	13° <u>♂</u> 43'30	2°14'56
minimum elong	-2439 Nov 08 j 01:18	27° <u>♂</u> 08'36	6°59'21	minimum elong	-2431 Nov 24 j 05:11	13° <u>♂</u> 43'31	2°14'53
max. Earth dist.	-2439 Nov 09 j 16:01	27° <u>♂</u> 12'11	32.26028 AU	max. Earth dist.	-2431 Nov 26 j 14:16	13° <u>♂</u> 48'29	33.87820 AU
retrograde	-2438 Feb 19 j 22:55	29° <u>♂</u> 34'49			-2430 Jan 02 j 02:29	15° <u>♂</u>	
min. Earth dist.	-2438 May 09 j 02:36	28° <u>♂</u> 17'34	30.36215 AU	retrograde	-2430 Mar 08 j 02:21	16° <u>♂</u> 00'26	
opposition	-2438 May 10 j 19:02	28° <u>♂</u> 14'56	7°08'00		-2430 May 16 j 16:26	15° <u>♂</u>	
direct	-2438 Jul 29 j 21:11	26° <u>♂</u> 54'53		min. Earth dist.	-2430 May 25 j 15:11	14° <u>♂</u> 46'49	31.99174 AU
				opposition	-2430 May 28 j 01:33	14° <u>♂</u> 43'12	2°04'43
conjunction	-2438 Nov 10 j 09:59	29° <u>♂</u> 19'26	6°23'48	direct	-2430 Aug 16 j 04:50	13° <u>♂</u> 26'33	
minimum elong	-2438 Nov 10 j 10:15	29° <u>♂</u> 19'27	6°23'45		-2430 Nov 06 j 14:01	15° <u>♂</u>	
max. Earth dist.	-2438 Nov 12 j 03:10	29° <u>♂</u> 23'13	32.43837 AU				
	-2438 Nov 29 j 00:33	0° <u>♂</u>		conjunction	-2430 Nov 26 j 08:49	15° <u>♂</u> 40'21	1°40'10
retrograde	-2437 Feb 22 j 08:43	1° <u>♂</u> 44'27		minimum elong	-2430 Nov 26 j 08:53	15° <u>♂</u> 40'21	1°40'06



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 30

Attention, astronomical year style is used: The year -2430 in astronomical counting style is the year 2431 BCE in historical counting style.

max. Earth dist.	-2430 Nov 28 j 19:50	15°M45'26	34.10536 AU	conjunction	-2422 Dec 10 j 15:46	0°J17'44	-2°-42'-23
retrograde	-2429 Mar 10 j 06:19	17°M56'10		minimum elong	-2422 Dec 10 j 15:41	0°J17'43	2°42'27
min. Earth dist.	-2429 May 27 j 19:54	16°M43'00	32.21982 AU	max. Earth dist.	-2422 Dec 13 j 12:56	0°J23'19	36.01612 AU
opposition	-2429 May 30 j 08:07	16°M39'17	1°27'54	retrograde	-2421 Mar 24 j 13:10	2°J25'03	
direct	-2429 Aug 18 j 13:41	15°M23'04		min. Earth dist.	-2421 Jun 11 j 12:41	1°J14'51	34.14375 AU
				opposition	-2421 Jun 14 j 11:51	1°J10'39	-3°-8'-18
conjunction	-2429 Nov 28 j 11:47	17°M35'38	1°05'45		-2421 Aug 20 j 08:32	30°RM	
minimum elong	-2429 Nov 28 j 11:49	17°M35'38	1°05'43	direct	-2421 Sep 02 j 18:46	29°M57'24	
max. Earth dist.	-2429 Nov 30 j 23:35	17°M40'45	34.33547 AU		-2421 Sep 16 j 05:50	0°J	
retrograde	-2428 Mar 11 j 10:41	19°M50'21					
min. Earth dist.	-2428 May 29 j 00:17	18°M37'36	32.45092 AU	conjunction	-2421 Dec 12 j 14:06	2°J00'35	-3°-12'-50
opposition	-2428 May 31 j 14:05	18°M33'49	0°51'32	minimum elong	-2421 Dec 12 j 14:00	2°J00'34	3°12'54
direct	-2428 Aug 19 j 19:50	17°M18'00		max. Earth dist.	-2421 Dec 15 j 13:24	2°J06'18	36.26762 AU
				retrograde	-2420 Mar 25 j 09:25	4°J06'56	
conjunction	-2428 Nov 29 j 14:24	19°M29'20	0°31'44	min. Earth dist.	-2420 Jun 12 j 12:36	2°J57'05	34.39734 AU
minimum elong	-2428 Nov 29 j 14:25	19°M29'20	0°31'41	opposition	-2420 Jun 15 j 12:24	2°J52'52	-3°-40'-8
max. Earth dist.	-2428 Dec 02 j 04:15	19°M34'35	34.56805 AU	direct	-2420 Sep 03 j 22:10	1°J39'59	
retrograde	-2427 Mar 13 j 10:42	21°M42'57					
min. Earth dist.	-2427 May 31 j 04:43	20°M30'33	32.68433 AU	conjunction	-2420 Dec 13 j 11:51	3°J42'08	-3°-42'-42
opposition	-2427 Jun 02 j 19:08	20°M26'45	0°15'37	minimum elong	-2420 Dec 13 j 11:44	3°J42'07	3°42'46
direct	-2427 Aug 22 j 02:52	19°M11'20		max. Earth dist.	-2420 Dec 16 j 11:06	3°J47'49	36.52116 AU
desc. node	-2427 Nov 11 j 03:16	20°M40'35		retrograde	-2419 Mar 27 j 07:17	5°J47'32	
				min. Earth dist.	-2419 Jun 14 j 10:40	4°J38'06	34.65293 AU
conjunction	-2427 Dec 01 j 16:11	21°M21'25	0°-1'-55	opposition	-2419 Jun 17 j 12:16	4°J33'48	-4°-11'-19
minimum elong	-2427 Dec 01 j 16:11	21°M21'25	0°01'58	direct	-2419 Sep 05 j 22:39	3°J21'18	
behind sun begin	-2427 Dec 01 j 09:49	21°M20'54					
behind sun end	-2427 Dec 01 j 22:32	21°M21'55		conjunction	-2419 Dec 15 j 09:15	5°J22'26	-4°-11'-57
max. Earth dist.	-2427 Dec 04 j 06:12	21°M26'39	34.80277 AU	minimum elong	-2419 Dec 15 j 09:07	5°J22'26	4°12'02
retrograde	-2426 Mar 15 j 11:44	23°M33'56		max. Earth dist.	-2419 Dec 18 j 10:25	5°J28'14	36.77615 AU
min. Earth dist.	-2426 Jun 02 j 07:04	22°M21'58	32.92019 AU	retrograde	-2418 Mar 29 j 03:14	7°J26'56	
opposition	-2426 Jun 04 j 23:39	22°M18'02	0°-19'-46	min. Earth dist.	-2418 Jun 16 j 10:32	6°J17'47	34.90973 AU
direct	-2426 Aug 24 j 07:43	21°M02'59		opposition	-2418 Jun 19 j 11:49	6°J13'31	-4°-41'-49
				direct	-2418 Sep 07 j 22:59	5°J01'24	
conjunction	-2426 Dec 03 j 17:17	23°M11'51	0°-35'00				
minimum elong	-2426 Dec 03 j 17:16	23°M11'51	0°35'04	conjunction	-2418 Dec 17 j 06:04	7°J01'32	-4°-40'-36
max. Earth dist.	-2426 Dec 06 j 09:43	23°M17'14	35.03971 AU	minimum elong	-2418 Dec 17 j 05:55	7°J01'31	4°40'41
retrograde	-2425 Mar 17 j 11:19	25°M23'18		max. Earth dist.	-2418 Dec 20 j 07:18	7°J07'17	37.03192 AU
min. Earth dist.	-2425 Jun 04 j 10:40	24°M11'36	33.15860 AU	retrograde	-2417 Mar 31 j 00:29	9°J05'08	
opposition	-2425 Jun 07 j 03:33	24°M07'41	0°-54'-39	min. Earth dist.	-2417 Jun 18 j 07:50	7°J56'23	35.16699 AU
direct	-2425 Aug 26 j 11:55	22°M53'00		opposition	-2417 Jun 21 j 10:44	7°J52'02	-5°-11'-40
				direct	-2417 Sep 09 j 21:33	6°J40'16	
conjunction	-2425 Dec 05 j 17:49	25°M00'39	-1°-7'-38				
minimum elong	-2425 Dec 05 j 17:47	25°M00'38	1°07'42	conjunction	-2417 Dec 19 j 02:38	8°J39'26	-5°-8'-39
max. Earth dist.	-2425 Dec 08 j 10:53	25°M06'02	35.27929 AU	minimum elong	-2417 Dec 19 j 02:28	8°J39'25	5°08'43
retrograde	-2424 Mar 18 j 12:14	27°M11'01		max. Earth dist.	-2417 Dec 22 j 04:42	8°J45'13	37.28756 AU
min. Earth dist.	-2424 Jun 05 j 11:08	25°M59'45	33.40001 AU	retrograde	-2416 Mar 31 j 22:41	10°J42'09	
opposition	-2424 Jun 08 j 06:27	25°M55'42	-1°-28'-58	min. Earth dist.	-2416 Jun 19 j 06:32	9°J33'39	35.42406 AU
direct	-2424 Aug 27 j 14:42	24°M41'21		opposition	-2416 Jun 22 j 09:06	9°J29'21	-5°-40'-51
				direct	-2416 Sep 10 j 18:10	8°J17'55	
conjunction	-2424 Dec 06 j 17:43	26°M47'50	-1°-39'-46				
minimum elong	-2424 Dec 06 j 17:40	26°M47'50	1°39'50	conjunction	-2416 Dec 19 j 22:49	10°J16'08	-5°-36'-5
max. Earth dist.	-2424 Dec 09 j 12:33	26°M53'20	35.52174 AU	minimum elong	-2416 Dec 19 j 22:38	10°J16'07	5°36'09
retrograde	-2423 Mar 20 j 13:14	28°M57'10		max. Earth dist.	-2416 Dec 23 j 01:22	10°J21'55	37.54268 AU
min. Earth dist.	-2423 Jun 07 j 12:59	27°M46'12	33.64471 AU	retrograde	-2415 Apr 02 j 18:38	12°J17'58	
opposition	-2423 Jun 10 j 08:55	27°M42'09	-2°-2'-42	min. Earth dist.	-2415 Jun 21 j 03:44	11°J09'46	35.68025 AU
direct	-2423 Aug 29 j 16:21	26°M28'09		opposition	-2415 Jun 24 j 06:55	11°J05'28	-6°-9'-21
				direct	-2415 Sep 12 j 16:25	9°J54'20	
conjunction	-2423 Dec 08 j 17:02	28°M33'30	-2°-11'-21				
minimum elong	-2423 Dec 08 j 16:58	28°M33'30	2°11'25	conjunction	-2415 Dec 21 j 18:16	11°J51'37	-6°-2'-53
max. Earth dist.	-2423 Dec 11 j 13:20	28°M39'05	35.76743 AU	minimum elong	-2415 Dec 21 j 18:06	11°J51'36	6°02'58
	-2422 Jan 26 j 05:54	0°J		max. Earth dist.	-2415 Dec 24 j 20:33	11°J57'20	37.79672 AU
retrograde	-2422 Mar 22 j 13:43	0°J41'49		retrograde	-2414 Apr 04 j 15:00	13°J52'34	
	-2422 May 19 j 13:36	30°RM		min. Earth dist.	-2414 Jun 23 j 00:40	12°J44'39	35.93565 AU
min. Earth dist.	-2422 Jun 09 j 12:53	29°M31'14	33.89261 AU	opposition	-2414 Jun 26 j 04:23	12°J40'20	-6°-37'-11
opposition	-2422 Jun 12 j 10:38	29°M27'06	-2°-35'-49	direct	-2414 Sep 14 j 13:55	11°J29'31	
direct	-2422 Aug 31 j 18:17	28°M13'28					
	-2422 Dec 01 j 12:19	0°J		conjunction	-2414 Dec 23 j 13:30	13°J25'52	-6°-29'-5



# Planetary Phenomena of Pluto from -2900 through -2400 (UT), Astrodienst AG 7-Dez-2017 14:41, page 31

Attention, astronomical year style is used: The year -2414 in astronomical counting style is the year 2415 BCE in historical counting style.

minimum elong	-2414 Dec 23 j 13:19	13° $\mathring{\text{A}}$ 25'51	6°29'09	min. Earth dist.	-2405 Jul 06 j 23:32	26° $\mathring{\text{A}}$ 09'35	38.23064 AU
max. Earth dist.	-2414 Dec 26 j 17:13	13° $\mathring{\text{A}}$ 31'39	38.04995 AU	opposition	-2405 Jul 10 j 06:47	26° $\mathring{\text{A}}$ 05'14	-10°-16'-52
retrograde	-2413 Apr 06 j 07:48	15° $\mathring{\text{A}}$ 25'57		direct	-2405 Sep 28 j 20:13	24° $\mathring{\text{A}}$ 57'08	
min. Earth dist.	-2413 Jun 24 j 21:44	14° $\mathring{\text{A}}$ 18'16	36.19034 AU				
opposition	-2413 Jun 28 j 01:12	14° $\mathring{\text{A}}$ 13'58	-7°-4'-20	conjunction	-2404 Jan 05 j 23:19	26° $\mathring{\text{A}}$ 46'19	-9°-56'-20
direct	-2413 Sep 16 j 13:29	13° $\mathring{\text{A}}$ 03'26		minimum elong	-2404 Jan 05 j 23:06	26° $\mathring{\text{A}}$ 46'19	9°56'26
				max. Earth dist.	-2404 Jan 09 j 06:17	26° $\mathring{\text{A}}$ 52'01	40.32491 AU
conjunction	-2413 Dec 25 j 08:06	14° $\mathring{\text{A}}$ 58'53	-6°-54'-38	retrograde	-2404 Apr 18 j 17:15	28° $\mathring{\text{A}}$ 39'44	
minimum elong	-2413 Dec 25 j 07:55	14° $\mathring{\text{A}}$ 58'52	6°54'44	min. Earth dist.	-2404 Jul 07 j 17:47	27° $\mathring{\text{A}}$ 34'32	38.48156 AU
max. Earth dist.	-2413 Dec 28 j 11:18	15° $\mathring{\text{A}}$ 04'35	38.30268 AU	opposition	-2404 Jul 10 j 23:48	27° $\mathring{\text{A}}$ 30'16	-10°-37'-57
retrograde	-2412 Apr 07 j 02:27	16° $\mathring{\text{A}}$ 58'07		direct	-2404 Sep 29 j 13:21	26° $\mathring{\text{A}}$ 22'27	
min. Earth dist.	-2412 Jun 25 j 16:33	15° $\mathring{\text{A}}$ 50'45	36.44490 AU				
opposition	-2412 Jun 28 j 21:29	15° $\mathring{\text{A}}$ 46'24	-7°-30'-47	conjunction	-2403 Jan 06 j 14:55	28° $\mathring{\text{A}}$ 10'56	-10°-16'-18
direct	-2412 Sep 17 j 10:08	14° $\mathring{\text{A}}$ 36'09		minimum elong	-2403 Jan 06 j 14:43	28° $\mathring{\text{A}}$ 10'55	10°16'22
				max. Earth dist.	-2403 Jan 09 j 21:34	28° $\mathring{\text{A}}$ 16'34	40.57225 AU
conjunction	-2412 Dec 26 j 02:20	16° $\mathring{\text{A}}$ 30'42	-7°-19'-34		-2403 Apr 03 j 07:33	0° $\mathring{\text{A}}$	
minimum elong	-2412 Dec 26 j 02:08	16° $\mathring{\text{A}}$ 30'41	7°19'39	retrograde	-2403 Apr 20 j 10:08	0° $\mathring{\text{A}}$ 03'40	
max. Earth dist.	-2412 Dec 29 j 06:57	16° $\mathring{\text{A}}$ 36'29	38.55530 AU		-2403 May 07 j 16:41	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$	
retrograde	-2411 Apr 08 j 18:57	18° $\mathring{\text{A}}$ 29'08		min. Earth dist.	-2403 Jul 09 j 10:01	28° $\mathring{\text{A}}$ 58'43	38.72948 AU
min. Earth dist.	-2411 Jun 27 j 12:52	17° $\mathring{\text{A}}$ 21'59	36.69967 AU	opposition	-2403 Jul 12 j 16:13	28° $\mathring{\text{A}}$ 54'27	-10°-58'-25
opposition	-2411 Jun 30 j 17:14	17° $\mathring{\text{A}}$ 17'40	-7°-56'-34	direct	-2403 Oct 01 j 04:44	27° $\mathring{\text{A}}$ 46'53	
direct	-2411 Sep 19 j 07:00	16° $\mathring{\text{A}}$ 07'43					
				conjunction	-2402 Jan 08 j 06:05	29° $\mathring{\text{A}}$ 34'41	-10°-35'-42
conjunction	-2411 Dec 27 j 20:09	18° $\mathring{\text{A}}$ 01'25	-7°-43'-51	minimum elong	-2402 Jan 08 j 05:52	29° $\mathring{\text{A}}$ 34'40	10°35'47
minimum elong	-2411 Dec 27 j 19:57	18° $\mathring{\text{A}}$ 01'24	7°43'57	max. Earth dist.	-2402 Jan 11 j 11:54	29° $\mathring{\text{A}}$ 40'14	40.81648 AU
max. Earth dist.	-2411 Dec 31 j 00:56	18° $\mathring{\text{A}}$ 07'10	38.80841 AU		-2402 Jan 23 j 04:41	0° $\mathring{\text{A}}$	
retrograde	-2410 Apr 10 j 13:30	19° $\mathring{\text{A}}$ 59'03		retrograde	-2402 Apr 22 j 03:04	1° $\mathring{\text{A}}$ 26'45	
min. Earth dist.	-2410 Jun 29 j 06:41	18° $\mathring{\text{A}}$ 52'14	36.95497 AU	min. Earth dist.	-2402 Jul 11 j 02:42	0° $\mathring{\text{A}}$ 21'59	38.97445 AU
opposition	-2410 Jul 02 j 12:32	18° $\mathring{\text{A}}$ 47'52	-8°-21'-39	opposition	-2402 Jul 14 j 08:31	0° $\mathring{\text{A}}$ 17'46	-11°-18'-17
direct	-2410 Sep 21 j 01:35	17° $\mathring{\text{A}}$ 38'13			-2402 Jul 28 j 03:43	30° $\mathring{\text{R}}$ $\mathring{\text{A}}$	
				direct	-2402 Oct 02 j 19:03	29° $\mathring{\text{A}}$ 10'26	
conjunction	-2410 Dec 29 j 13:24	19° $\mathring{\text{A}}$ 31'06	-8°-7'-30		-2402 Dec 05 j 03:52	0° $\mathring{\text{A}}$	
minimum elong	-2410 Dec 29 j 13:12	19° $\mathring{\text{A}}$ 31'05	8°07'34				
max. Earth dist.	-2409 Jan 01 j 18:51	19° $\mathring{\text{A}}$ 36'51	39.06194 AU	conjunction	-2401 Jan 09 j 20:59	0° $\mathring{\text{A}}$ 57'32	-10°-54'-31
retrograde	-2409 Apr 12 j 09:30	21° $\mathring{\text{A}}$ 27'59		minimum elong	-2401 Jan 09 j 20:47	0° $\mathring{\text{A}}$ 57'31	10°54'35
min. Earth dist.	-2409 Jul 01 j 01:35	20° $\mathring{\text{A}}$ 21'25	37.21085 AU	max. Earth dist.	-2401 Jan 13 j 03:29	1° $\mathring{\text{A}}$ 03'05	41.05777 AU
opposition	-2409 Jul 04 j 07:32	20° $\mathring{\text{A}}$ 17'05	-8°-46'-2	retrograde	-2401 Apr 23 j 16:22	2° $\mathring{\text{A}}$ 48'55	
direct	-2409 Sep 22 j 17:35	19° $\mathring{\text{A}}$ 07'44		min. Earth dist.	-2401 Jul 12 j 19:17	1° $\mathring{\text{A}}$ 44'18	39.21641 AU
				opposition	-2401 Jul 16 j 00:18	1° $\mathring{\text{A}}$ 40'09	-11°-37'-33
conjunction	-2409 Dec 31 j 06:34	20° $\mathring{\text{A}}$ 59'50	-8°-30'-31	direct	-2401 Oct 04 j 12:52	0° $\mathring{\text{A}}$ 33'02	
minimum elong	-2409 Dec 31 j 06:22	20° $\mathring{\text{A}}$ 59'49	8°30'35				
max. Earth dist.	-2408 Jan 03 j 13:03	21° $\mathring{\text{A}}$ 05'37	39.31591 AU	conjunction	-2400 Jan 11 j 11:29	2° $\mathring{\text{A}}$ 19'27	-11°-12'-46
retrograde	-2408 Apr 13 j 01:45	22° $\mathring{\text{A}}$ 55'59		minimum elong	-2400 Jan 11 j 11:16	2° $\mathring{\text{A}}$ 19'26	11°12'51
min. Earth dist.	-2408 Jul 01 j 19:30	21° $\mathring{\text{A}}$ 49'43	37.46682 AU	max. Earth dist.	-2400 Jan 14 j 16:41	2° $\mathring{\text{A}}$ 24'53	41.29635 AU
opposition	-2408 Jul 05 j 01:47	21° $\mathring{\text{A}}$ 45'22	-9°-9'-45	retrograde	-2400 Apr 24 j 05:57	4° $\mathring{\text{A}}$ 10'09	
direct	-2408 Sep 23 j 13:07	20° $\mathring{\text{A}}$ 36'20		min. Earth dist.	-2400 Jul 13 j 09:57	3° $\mathring{\text{A}}$ 05'45	39.45603 AU
				opposition	-2400 Jul 16 j 15:30	3° $\mathring{\text{A}}$ 01'35	-11°-56'-12
conjunction	-2408 Dec 31 j 23:10	22° $\mathring{\text{A}}$ 27'41	-8°-52'-53	direct	-2400 Oct 05 j 05:11	1° $\mathring{\text{A}}$ 54'40	
minimum elong	-2408 Dec 31 j 22:57	22° $\mathring{\text{A}}$ 27'40	8°52'57				
max. Earth dist.	-2407 Jan 04 j 05:06	22° $\mathring{\text{A}}$ 33'24	39.56975 AU				
retrograde	-2407 Apr 14 j 19:09	24° $\mathring{\text{A}}$ 23'06					
min. Earth dist.	-2407 Jul 03 j 12:48	23° $\mathring{\text{A}}$ 17'10	37.72260 AU				
opposition	-2407 Jul 06 j 19:52	23° $\mathring{\text{A}}$ 12'48	-9°-32'-46				
direct	-2407 Sep 25 j 06:58	22° $\mathring{\text{A}}$ 04'04					
conjunction	-2406 Jan 02 j 15:27	23° $\mathring{\text{A}}$ 54'42	-9°-14'-39				
minimum elong	-2406 Jan 02 j 15:14	23° $\mathring{\text{A}}$ 54'41	9°14'44				
max. Earth dist.	-2406 Jan 05 j 22:50	24° $\mathring{\text{A}}$ 00'29	39.82298 AU				
retrograde	-2406 Apr 16 j 09:44	25° $\mathring{\text{A}}$ 49'26					
min. Earth dist.	-2406 Jul 05 j 07:20	24° $\mathring{\text{A}}$ 43'44	37.97739 AU				
opposition	-2406 Jul 08 j 13:36	24° $\mathring{\text{A}}$ 39'25	-9°-55'-9				
direct	-2406 Sep 27 j 02:42	23° $\mathring{\text{A}}$ 31'01					
conjunction	-2405 Jan 04 j 07:31	25° $\mathring{\text{A}}$ 20'54	-9°-35'-47				
minimum elong	-2405 Jan 04 j 07:18	25° $\mathring{\text{A}}$ 20'54	9°35'51				
max. Earth dist.	-2405 Jan 07 j 14:05	25° $\mathring{\text{A}}$ 26'37	40.07498 AU				
retrograde	-2405 Apr 18 j 01:22	27° $\mathring{\text{A}}$ 14'59					



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 1

Attention, astronomical year style is used: The year -2400 in astronomical counting style is the year 2401 BCE in historical counting style.

conjunction	-2400 Jan 11 j 11:29	2°☾19'27	-11°-12'-46	minimum elong	-2392 Jan 21 j 21:05	12°☾46'16	13°18'40
minimum elong	-2400 Jan 11 j 11:16	2°☾19'26	11°12'51	max. Earth dist.	-2392 Jan 25 j 01:47	12°☾51'26	43.14223 AU
max. Earth dist.	-2400 Jan 14 j 16:41	2°☾24'53	41.29635 AU	retrograde	-2392 May 04 j 13:54	14°☾32'27	
retrograde	-2400 Apr 24 j 05:57	4°☾10'09		min. Earth dist.	-2392 Jul 24 j 04:23	13°☾29'35	41.31000 AU
min. Earth dist.	-2400 Jul 13 j 09:57	3°☾05'45	39.45603 AU	opposition	-2392 Jul 27 j 06:44	13°☾25'41	-14°-4'-8
opposition	-2400 Jul 16 j 15:30	3°☾01'35	-11°-56'-12	direct	-2392 Oct 15 j 22:33	12°☾20'39	
direct	-2400 Oct 05 j 05:11	1°☾54'40					
conjunction	-2399 Jan 12 j 01:43	3°☾40'26	-11°-30'-27	conjunction	-2391 Jan 22 j 09:38	14°☾01'53	-13°-31'-58
minimum elong	-2399 Jan 12 j 01:31	3°☾40'25	11°30'32	minimum elong	-2391 Jan 22 j 09:28	14°☾01'53	13°32'03
max. Earth dist.	-2399 Jan 15 j 07:46	3°☾45'53	41.53276 AU	max. Earth dist.	-2391 Jan 25 j 13:46	14°☾07'00	43.36160 AU
retrograde	-2399 Apr 25 j 18:08	5°☾30'29		retrograde	-2391 May 06 j 02:44	15°☾47'34	
min. Earth dist.	-2399 Jul 15 j 02:11	4°☾26'13	39.69376 AU	min. Earth dist.	-2391 Jul 25 j 17:20	14°☾44'53	41.52911 AU
opposition	-2399 Jul 18 j 06:34	4°☾22'07	-12°-14'-15	opposition	-2391 Jul 28 j 19:20	14°☾41'02	-14°-17'-40
direct	-2399 Oct 06 j 21:53	3°☾15'25		direct	-2391 Oct 17 j 10:52	13°☾36'11	
conjunction	-2398 Jan 13 j 15:28	5°☾00'31	-11°-47'-34	conjunction	-2390 Jan 23 j 21:29	15°☾16'56	-13°-44'-52
minimum elong	-2398 Jan 13 j 15:15	5°☾00'30	11°47'38	minimum elong	-2390 Jan 23 j 21:19	15°☾16'55	13°44'55
max. Earth dist.	-2398 Jan 16 j 21:08	5°☾05'56	41.76763 AU	max. Earth dist.	-2390 Jan 26 j 23:59	15°☾21'54	43.57670 AU
retrograde	-2398 Apr 27 j 07:05	6°☾49'58		retrograde	-2390 May 07 j 17:34	17°☾02'06	
min. Earth dist.	-2398 Jul 16 j 15:52	5°☾45'56	39.93001 AU	min. Earth dist.	-2390 Jul 27 j 06:29	15°☾59'34	41.74399 AU
opposition	-2398 Jul 19 j 21:12	5°☾41'48	-12°-31'-41	opposition	-2390 Jul 30 j 07:51	15°☾55'46	-14°-30'-42
direct	-2398 Oct 08 j 13:25	4°☾35'19		direct	-2390 Oct 18 j 20:31	14°☾51'07	
conjunction	-2397 Jan 15 j 05:00	6°☾19'48	-12°-4'-6	conjunction	-2389 Jan 25 j 09:23	16°☾31'22	-13°-57'-17
minimum elong	-2397 Jan 15 j 04:49	6°☾19'47	12°04'11	minimum elong	-2389 Jan 25 j 09:14	16°☾31'21	13°57'22
max. Earth dist.	-2397 Jan 18 j 10:35	6°☾25'10	42.00110 AU	max. Earth dist.	-2389 Jan 28 j 12:12	16°☾36'20	43.78761 AU
retrograde	-2397 Apr 28 j 22:35	8°☾08'38		retrograde	-2389 May 09 j 04:29	18°☾16'01	
min. Earth dist.	-2397 Jul 18 j 06:51	7°☾04'46	40.16505 AU	min. Earth dist.	-2389 Jul 28 j 20:04	17°☾13'34	41.95463 AU
opposition	-2397 Jul 21 j 11:34	7°☾00'41	-12°-48'-31	opposition	-2389 Jul 31 j 19:52	17°☾09'51	-14°-43'-15
direct	-2397 Oct 10 j 02:12	5°☾54'26		direct	-2389 Oct 20 j 09:26	16°☾05'23	
conjunction	-2396 Jan 16 j 18:25	7°☾38'20	-12°-20'-5	conjunction	-2388 Jan 26 j 20:54	17°☾45'07	-14°-9'-14
minimum elong	-2396 Jan 16 j 18:13	7°☾38'19	12°20'09	minimum elong	-2388 Jan 26 j 20:45	17°☾45'07	14°09'18
max. Earth dist.	-2396 Jan 20 j 00:34	7°☾43'42	42.23338 AU	max. Earth dist.	-2388 Jan 29 j 22:07	17°☾49'58	43.99465 AU
retrograde	-2396 Apr 29 j 12:22	9°☾26'35		retrograde	-2388 May 09 j 13:37	19°☾29'16	
min. Earth dist.	-2396 Jul 18 j 20:59	8°☾22'56	40.39854 AU	min. Earth dist.	-2388 Jul 29 j 07:29	18°☾27'00	42.16168 AU
opposition	-2396 Jul 22 j 01:32	8°☾18'52	-13°-4'-46	opposition	-2388 Aug 01 j 07:36	18°☾23'16	-14°-55'-19
direct	-2396 Oct 10 j 15:30	7°☾12'52		direct	-2388 Oct 20 j 22:47	17°☾18'57	
conjunction	-2395 Jan 17 j 07:21	8°☾56'11	-12°-35'-30	conjunction	-2387 Jan 27 j 08:04	18°☾58'12	-14°-20'-43
minimum elong	-2395 Jan 17 j 07:10	8°☾56'10	12°35'35	minimum elong	-2387 Jan 27 j 07:55	18°☾58'11	14°20'49
max. Earth dist.	-2395 Jan 20 j 12:29	9°☾01'27	42.46403 AU	max. Earth dist.	-2387 Jan 30 j 09:23	19°☾03'02	44.19828 AU
retrograde	-2395 May 01 j 02:31	10°☾43'53		retrograde	-2387 May 10 j 22:30	20°☾41'51	
min. Earth dist.	-2395 Jul 20 j 10:22	9°☾40'29	40.63038 AU	min. Earth dist.	-2387 Jul 30 j 20:32	19°☾39'40	42.36568 AU
opposition	-2395 Jul 23 j 15:14	9°☾36'25	-13°-20'-26	opposition	-2387 Aug 02 j 19:08	19°☾36'01	-15°-6'-53
direct	-2395 Oct 12 j 04:07	8°☾30'39		direct	-2387 Oct 22 j 12:57	18°☾31'52	
conjunction	-2394 Jan 18 j 20:12	10°☾13'26	-12°-50'-24	conjunction	-2386 Jan 28 j 19:07	20°☾10'37	-14°-31'-44
minimum elong	-2394 Jan 18 j 20:01	10°☾13'25	12°50'28	minimum elong	-2386 Jan 28 j 18:59	20°☾10'37	14°31'48
max. Earth dist.	-2394 Jan 22 j 02:11	10°☾18'44	42.69280 AU	max. Earth dist.	-2386 Jan 31 j 20:00	20°☾15'24	44.39938 AU
retrograde	-2394 May 02 j 12:54	12°☾00'37		retrograde	-2386 May 12 j 09:20	21°☾53'48	
min. Earth dist.	-2394 Jul 22 j 01:07	10°☾57'22	40.85997 AU	min. Earth dist.	-2386 Aug 01 j 07:21	20°☾51'47	42.56721 AU
opposition	-2394 Jul 25 j 04:44	10°☾53'23	-13°-35'-32	opposition	-2386 Aug 04 j 06:16	20°☾48'07	-15°-17'-56
direct	-2394 Oct 13 j 19:49	9°☾47'52		direct	-2386 Oct 24 j 00:45	19°☾44'08	
conjunction	-2393 Jan 20 j 08:47	11°☾30'07	-13°-4'-45	conjunction	-2385 Jan 30 j 05:47	21°☾22'25	-14°-42'-16
minimum elong	-2393 Jan 20 j 08:37	11°☾30'06	13°04'50	minimum elong	-2385 Jan 30 j 05:38	21°☾22'25	14°42'21
max. Earth dist.	-2393 Jan 23 j 13:36	11°☾35'20	42.91916 AU	max. Earth dist.	-2385 Feb 02 j 05:48	21°☾27'07	44.59818 AU
retrograde	-2393 May 04 j 00:50	13°☾16'47		retrograde	-2385 May 13 j 21:54	23°☾05'08	
min. Earth dist.	-2393 Jul 23 j 13:52	12°☾13'48	41.08674 AU	min. Earth dist.	-2385 Aug 02 j 19:06	22°☾03'14	42.76666 AU
opposition	-2393 Jul 26 j 17:53	12°☾09'48	-13°-50'-6	opposition	-2385 Aug 05 j 17:19	21°☾59'38	-15°-28'-30
direct	-2393 Oct 15 j 09:47	11°☾04'31		direct	-2385 Oct 25 j 10:01	20°☾55'49	
conjunction	-2392 Jan 21 j 21:16	12°☾46'16	-13°-18'-36	conjunction	-2384 Jan 31 j 16:31	22°☾33'40	-14°-52'-20
				minimum elong	-2384 Jan 31 j 16:24	22°☾33'39	14°52'23



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 2

Attention, astronomical year style is used: The year -2384 in astronomical counting style is the year 2385 BCE in historical counting style.

max. Earth dist.	-2384 Feb 03 j 17:07	22° $\overline{38}$ '22	44.79498 AU	conjunction	-2376 Feb 09 j 23:31	1° $\approx$ 46'56	-15°-57'-16
retrograde	-2384 May 14 j 08:37	24° $\overline{3}$ '55		minimum elong	-2376 Feb 09 j 23:28	1° $\approx$ 46'56	15°57'21
min. Earth dist.	-2384 Aug 03 j 06:23	23° $\overline{3}$ '14'09	42.96389 AU	max. Earth dist.	-2376 Feb 12 j 17:04	1° $\approx$ 51'03	46.25790 AU
opposition	-2384 Aug 06 j 03:52	23° $\overline{3}$ '10'35	-15°-38'-35	retrograde	-2376 May 23 j 11:15	3° $\approx$ 25'57	
direct	-2384 Oct 25 j 20:11	22° $\overline{3}$ '06'56		min. Earth dist.	-2376 Aug 12 j 19:11	2° $\approx$ 25'10	44.42201 AU
				opposition	-2376 Aug 15 j 10:18	2° $\approx$ 21'59	-16°-43'-15
conjunction	-2383 Feb 01 j 02:49	23° $\overline{3}$ '44'22	-15°-1'-55	direct	-2376 Nov 04 j 06:05	1° $\approx$ 19'37	
minimum elong	-2383 Feb 01 j 02:42	23° $\overline{3}$ '44'22	15°01'59				
max. Earth dist.	-2383 Feb 04 j 01:55	23° $\overline{3}$ '48'58	44.98969 AU	conjunction	-2375 Feb 10 j 08:34	2° $\approx$ 53'59	-16°-3'-37
retrograde	-2383 May 15 j 19:49	25° $\overline{3}$ '26'11		minimum elong	-2375 Feb 10 j 08:31	2° $\approx$ 53'59	16°03'41
min. Earth dist.	-2383 Aug 04 j 16:33	24° $\overline{3}$ '24'36	43.15896 AU	max. Earth dist.	-2375 Feb 13 j 01:11	2° $\approx$ 58'02	46.42217 AU
opposition	-2383 Aug 07 j 14:22	24° $\overline{3}$ '21'03	-15°-48'-10	retrograde	-2375 May 24 j 20:35	4° $\approx$ 32'38	
direct	-2383 Oct 27 j 05:34	23° $\overline{3}$ '17'35		min. Earth dist.	-2375 Aug 14 j 05:43	3° $\approx$ 31'53	44.58570 AU
				opposition	-2375 Aug 16 j 19:17	3° $\approx$ 28'48	-16°-49'-30
conjunction	-2382 Feb 02 j 12:55	24° $\overline{3}$ '54'36	-15°-11'-4	direct	-2375 Nov 05 j 15:25	2° $\approx$ 26'33	
minimum elong	-2382 Feb 02 j 12:49	24° $\overline{3}$ '54'36	15°11'08				
max. Earth dist.	-2382 Feb 05 j 12:25	24° $\overline{3}$ '59'12	45.18202 AU	conjunction	-2374 Feb 11 j 17:27	4° $\approx$ 00'33	-16°-9'-35
retrograde	-2382 May 17 j 03:55	26° $\overline{3}$ '36'01		minimum elong	-2374 Feb 11 j 17:24	4° $\approx$ 00'33	16°09'40
min. Earth dist.	-2382 Aug 06 j 04:38	25° $\overline{3}$ '34'32	43.35139 AU	max. Earth dist.	-2374 Feb 14 j 10:12	4° $\approx$ 04'35	46.58326 AU
opposition	-2382 Aug 09 j 00:46	25° $\overline{3}$ '31'04	-15°-57'-18	retrograde	-2374 May 26 j 05:47	5° $\approx$ 38'50	
direct	-2382 Oct 28 j 17:18	24° $\overline{3}$ '27'47		min. Earth dist.	-2374 Aug 15 j 14:50	4° $\approx$ 38'11	44.74623 AU
				opposition	-2374 Aug 18 j 03:57	4° $\approx$ 35'08	-16°-55'-22
conjunction	-2381 Feb 03 j 23:04	26° $\overline{3}$ '04'24	-15°-19'-46	direct	-2374 Nov 07 j 00:05	3° $\approx$ 33'00	
minimum elong	-2381 Feb 03 j 22:57	26° $\overline{3}$ '04'24	15°19'50				
max. Earth dist.	-2381 Feb 06 j 21:42	26° $\overline{3}$ '08'56	45.37162 AU	conjunction	-2373 Feb 13 j 02:11	5° $\approx$ 06'41	-16°-15'-9
retrograde	-2381 May 18 j 12:07	27° $\overline{3}$ '45'24		minimum elong	-2373 Feb 13 j 02:09	5° $\approx$ 06'41	16°15'12
min. Earth dist.	-2381 Aug 07 j 14:29	26° $\overline{3}$ '44'07	43.54064 AU	max. Earth dist.	-2373 Feb 15 j 17:12	5° $\approx$ 10'36	46.74150 AU
opposition	-2381 Aug 10 j 10:42	26° $\overline{3}$ '40'39	-16°-5'-59	retrograde	-2373 May 27 j 17:05	6° $\approx$ 44'36	
direct	-2381 Oct 30 j 05:24	25° $\overline{3}$ '37'33		min. Earth dist.	-2373 Aug 16 j 23:33	5° $\approx$ 44'05	44.90415 AU
				opposition	-2373 Aug 19 j 12:22	5° $\approx$ 41'03	-17°00'-49
conjunction	-2380 Feb 05 j 09:01	27° $\overline{3}$ '13'47	-15°-28'-3	direct	-2373 Nov 08 j 05:33	4° $\approx$ 39'04	
minimum elong	-2380 Feb 05 j 08:56	27° $\overline{3}$ '13'47	15°28'07				
max. Earth dist.	-2380 Feb 08 j 06:28	27° $\overline{3}$ '18'14	45.55765 AU	conjunction	-2372 Feb 14 j 10:54	6° $\approx$ 12'26	-16°-20'-20
retrograde	-2380 May 19 j 00:07	28° $\overline{3}$ '54'24		minimum elong	-2372 Feb 14 j 10:51	6° $\approx$ 12'26	16°20'24
min. Earth dist.	-2380 Aug 08 j 01:58	27° $\overline{3}$ '53'13	43.72610 AU	max. Earth dist.	-2372 Feb 17 j 02:15	6° $\approx$ 16'21	46.89716 AU
opposition	-2380 Aug 10 j 20:41	27° $\overline{3}$ '49'50	-16°-14'-14	retrograde	-2372 May 28 j 00:45	7° $\approx$ 50'01	
direct	-2380 Oct 30 j 14:18	26° $\overline{3}$ '46'54		min. Earth dist.	-2372 Aug 17 j 09:28	6° $\approx$ 49'34	45.05938 AU
				opposition	-2372 Aug 19 j 20:45	6° $\approx$ 46'37	-17°-5'-51
conjunction	-2379 Feb 05 j 18:53	28° $\overline{3}$ '22'46	-15°-35'-56	direct	-2372 Nov 08 j 14:14	5° $\approx$ 44'47	
minimum elong	-2379 Feb 05 j 18:47	28° $\overline{3}$ '22'46	15°36'00				
max. Earth dist.	-2379 Feb 08 j 16:09	28° $\overline{3}$ '27'10	45.73961 AU	conjunction	-2371 Feb 14 j 19:15	7° $\approx$ 17'50	-16°-25'-7
	-2379 May 04 j 03:48	0° $\approx$		minimum elong	-2371 Feb 14 j 19:14	7° $\approx$ 17'50	16°25'11
retrograde	-2379 May 20 j 10:06	0° $\approx$ 02'59		max. Earth dist.	-2371 Feb 17 j 09:25	7° $\approx$ 21'41	47.05034 AU
	-2379 Jun 05 j 18:14	30° $\overline{R}$ $\overline{3}$		retrograde	-2371 May 29 j 06:16	8° $\approx$ 55'07	
min. Earth dist.	-2379 Aug 09 j 12:46	29° $\overline{3}$ '01'54	43.90700 AU	min. Earth dist.	-2371 Aug 18 j 17:13	7° $\approx$ 54'50	45.21196 AU
opposition	-2379 Aug 12 j 06:23	28° $\overline{3}$ '58'36	-16°-22'-4	opposition	-2371 Aug 21 j 04:53	7° $\approx$ 51'53	-17°-10'-30
direct	-2379 Oct 31 j 23:44	27° $\overline{3}$ '55'49		direct	-2371 Nov 10 j 00:31	6° $\approx$ 50'11	
conjunction	-2378 Feb 07 j 04:34	29° $\overline{3}$ '31'19	-15°-43'-25	conjunction	-2370 Feb 16 j 03:33	8° $\approx$ 22'58	-16°-29'-32
minimum elong	-2378 Feb 07 j 04:29	29° $\overline{3}$ '31'18	15°43'30	minimum elong	-2370 Feb 16 j 03:31	8° $\approx$ 22'58	16°29'36
max. Earth dist.	-2378 Feb 09 j 23:46	29° $\overline{3}$ '35'34	45.91699 AU	max. Earth dist.	-2370 Feb 18 j 17:00	8° $\approx$ 26'45	47.20072 AU
	-2378 Feb 26 j 08:05	0° $\approx$		retrograde	-2370 May 30 j 14:11	9° $\approx$ 59'57	
retrograde	-2378 May 21 j 20:57	1° $\approx$ 11'08		min. Earth dist.	-2370 Aug 20 j 02:59	8° $\approx$ 59'45	45.36164 AU
min. Earth dist.	-2378 Aug 10 j 22:53	0° $\approx$ 10'10	44.08327 AU	opposition	-2370 Aug 22 j 12:59	8° $\approx$ 56'53	-17°-14'-45
opposition	-2378 Aug 13 j 15:59	0° $\approx$ 06'54	-16°-29'-31	direct	-2370 Nov 11 j 09:54	7° $\approx$ 55'21	
	-2378 Aug 19 j 09:00	30° $\overline{R}$ $\overline{3}$					
direct	-2378 Nov 02 j 07:59	29° $\overline{3}$ '04'16		conjunction	-2369 Feb 17 j 11:55	9° $\approx$ 27'51	-16°-33'-35
	-2377 Jan 12 j 19:17	0° $\approx$		minimum elong	-2369 Feb 17 j 11:55	9° $\approx$ 27'51	16°33'39
				max. Earth dist.	-2369 Feb 20 j 01:06	9° $\approx$ 31'36	47.34808 AU
conjunction	-2377 Feb 08 j 14:07	0° $\approx$ 39'23	-15°-50'-32	retrograde	-2369 May 31 j 22:56	11° $\approx$ 04'33	
minimum elong	-2377 Feb 08 j 14:03	0° $\approx$ 39'22	15°50'36	min. Earth dist.	-2369 Aug 21 j 11:23	10° $\approx$ 04'29	45.50773 AU
max. Earth dist.	-2377 Feb 11 j 09:10	0° $\approx$ 43'36	46.08965 AU	opposition	-2369 Aug 23 j 20:48	10° $\approx$ 01'39	-17°-18'-39
retrograde	-2377 May 23 j 04:01	2° $\approx$ 18'48		direct	-2369 Nov 12 j 17:47	9° $\approx$ 00'16	
min. Earth dist.	-2377 Aug 12 j 10:15	1° $\approx$ 17'52	44.25476 AU				
opposition	-2377 Aug 15 j 01:23	1° $\approx$ 14'42	-16°-36'-35	conjunction	-2368 Feb 18 j 20:04	10° $\approx$ 32'30	-16°-37'-17
direct	-2377 Nov 03 j 19:28	0° $\approx$ 12'12		minimum elong	-2368 Feb 18 j 20:03	10° $\approx$ 32'30	16°37'21
				max. Earth dist.	-2368 Feb 21 j 07:15	10° $\approx$ 36'07	47.49154 AU



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 3

Attention, astronomical year style is used: The year -2368 in astronomical counting style is the year 2369 BCE in historical counting style.

retrograde	-2368 Jun 01 j 09:38	12°08'55		minimum elong	-2360 Feb 27 j 09:50	18°57'52	16°55'30
min. Earth dist.	-2368 Aug 21 j 20:09	11°08'57	45.64974 AU	max. Earth dist.	-2360 Feb 29 j 12:31	19°00'54	48.47343 AU
opposition	-2368 Aug 24 j 04:28	11°06'11	-17°-22'-12	retrograde	-2360 Jun 09 j 16:46	20°31'56	
direct	-2368 Nov 12 j 23:08	10°04'56		min. Earth dist.	-2360 Aug 30 j 14:25	19°32'20	46.61787 AU
				opposition	-2360 Sep 01 j 13:22	19°30'02	-17°-38'-52
conjunction	-2367 Feb 19 j 04:18	11°36'56	-16°-40'-39	direct	-2360 Nov 21 j 12:30	18°29'30	
minimum elong	-2367 Feb 19 j 04:19	11°36'56	16°40'43				
max. Earth dist.	-2367 Feb 21 j 15:19	11°40'31	47.63057 AU	conjunction	-2359 Feb 27 j 16:58	19°59'25	-16°-56'-17
retrograde	-2367 Jun 02 j 17:26	13°13'03		minimum elong	-2359 Feb 27 j 17:01	19°59'25	16°56'21
min. Earth dist.	-2367 Aug 23 j 05:42	12°13'08	45.78687 AU	max. Earth dist.	-2359 Mar 01 j 19:15	20°02'24	48.57972 AU
opposition	-2367 Aug 25 j 12:09	12°10'27	-17°-25'-24	retrograde	-2359 Jun 10 j 22:21	21°33'14	
direct	-2367 Nov 14 j 06:29	11°09'20		min. Earth dist.	-2359 Aug 31 j 21:00	20°33'44	46.72272 AU
				opposition	-2359 Sep 02 j 19:49	20°31'27	-17°-39'-27
conjunction	-2366 Feb 20 j 12:16	12°41'04	-16°-43'-42	direct	-2359 Nov 22 j 20:41	19°31'01	
minimum elong	-2366 Feb 20 j 12:16	12°41'04	16°43'45				
max. Earth dist.	-2366 Feb 22 j 21:10	12°44'31	47.76468 AU	conjunction	-2358 Feb 28 j 23:49	21°00'43	-16°-56'-47
retrograde	-2366 Jun 04 j 00:34	14°16'53		minimum elong	-2358 Feb 28 j 23:53	21°00'43	16°56'49
min. Earth dist.	-2366 Aug 24 j 13:33	13°17'05	45.91884 AU	max. Earth dist.	-2358 Mar 03 j 00:27	21°03'36	48.68300 AU
opposition	-2366 Aug 26 j 19:40	13°14'25	-17°-28'-18	retrograde	-2358 Jun 12 j 07:17	22°34'19	
direct	-2366 Nov 15 j 14:15	12°13'24		min. Earth dist.	-2358 Sep 02 j 04:37	21°34'53	46.82451 AU
				opposition	-2358 Sep 04 j 02:18	21°32'40	-17°-39'-43
conjunction	-2365 Feb 21 j 20:16	13°44'52	-16°-46'-27	direct	-2358 Nov 24 j 01:35	20°32'20	
minimum elong	-2365 Feb 21 j 20:17	13°44'52	16°46'31				
max. Earth dist.	-2365 Feb 24 j 04:01	13°48'15	47.89349 AU	conjunction	-2357 Mar 02 j 06:57	22°01'51	-16°-56'-58
	-2365 Apr 22 j 09:26	15°		minimum elong	-2357 Mar 02 j 07:00	22°01'51	16°57'01
retrograde	-2365 Jun 05 j 06:14	15°20'23		max. Earth dist.	-2357 Mar 04 j 07:36	22°04'44	48.78298 AU
	-2365 Jul 19 j 20:30	15°R		retrograde	-2357 Jun 13 j 14:51	23°35'14	
min. Earth dist.	-2365 Aug 25 j 23:15	14°20'34	46.04559 AU	min. Earth dist.	-2357 Sep 03 j 12:17	22°35'51	46.92259 AU
opposition	-2365 Aug 28 j 03:01	14°18'02	-17°-30'-53	opposition	-2357 Sep 05 j 08:29	22°33'43	-17°-39'-39
direct	-2365 Nov 16 j 23:48	13°17'06		direct	-2357 Nov 25 j 07:05	21°33'29	
conjunction	-2364 Feb 23 j 04:11	14°48'16	-16°-48'-54	conjunction	-2356 Mar 02 j 13:55	23°02'51	-16°-56'-51
minimum elong	-2364 Feb 23 j 04:12	14°48'16	16°48'57	minimum elong	-2356 Mar 02 j 14:00	23°02'51	16°56'54
max. Earth dist.	-2364 Feb 25 j 11:08	14°51'36	48.01739 AU	max. Earth dist.	-2356 Mar 04 j 12:31	23°05'36	48.87916 AU
	-2364 Mar 02 j 06:42	15°		retrograde	-2356 Jun 13 j 22:36	24°36'02	
retrograde	-2364 Jun 05 j 12:09	16°23'29		min. Earth dist.	-2356 Sep 03 j 18:51	23°36'45	47.01654 AU
min. Earth dist.	-2364 Aug 26 j 06:55	15°23'44	46.16746 AU	opposition	-2356 Sep 05 j 14:38	23°34'38	-17°-39'-18
opposition	-2364 Aug 28 j 10:08	15°21'14	-17°-33'-8	direct	-2356 Nov 25 j 11:57	22°34'31	
	-2364 Sep 15 j 20:45	15°R					
direct	-2364 Nov 17 j 09:21	14°20'23		conjunction	-2355 Mar 03 j 20:43	24°03'42	-16°-56'-28
	-2363 Jan 16 j 20:23	15°		minimum elong	-2355 Mar 03 j 20:46	24°03'43	16°56'31
				max. Earth dist.	-2355 Mar 05 j 18:22	24°06'24	48.97074 AU
conjunction	-2363 Feb 23 j 11:36	15°51'16	-16°-51'-1	retrograde	-2355 Jun 15 j 03:39	25°36'42	
minimum elong	-2363 Feb 23 j 11:38	15°51'16	16°51'06	min. Earth dist.	-2355 Sep 05 j 03:27	24°37'25	47.10562 AU
max. Earth dist.	-2363 Feb 25 j 16:33	15°54'27	48.13671 AU	opposition	-2355 Sep 06 j 20:53	24°35'25	-17°-38'-40
retrograde	-2363 Jun 06 j 22:24	17°26'11		direct	-2355 Nov 26 j 19:20	23°35'24	
min. Earth dist.	-2363 Aug 27 j 15:05	16°26'27	46.28519 AU				
opposition	-2363 Aug 29 j 17:14	16°24'01	-17°-35'-5	conjunction	-2354 Mar 05 j 03:41	25°04'25	-16°-55'-48
direct	-2363 Nov 18 j 14:14	15°23'14		minimum elong	-2354 Mar 05 j 03:47	25°04'26	16°55'51
				max. Earth dist.	-2354 Mar 07 j 00:15	25°07'03	49.05741 AU
conjunction	-2362 Feb 24 j 19:10	16°53'51	-16°-52'-50	retrograde	-2354 Jun 16 j 08:00	26°37'13	
minimum elong	-2362 Feb 24 j 19:12	16°53'51	16°52'53	min. Earth dist.	-2354 Sep 06 j 09:57	25°38'01	47.18944 AU
max. Earth dist.	-2362 Feb 27 j 00:13	16°57'02	48.25220 AU	opposition	-2354 Sep 08 j 02:48	25°36'02	-17°-37'-45
retrograde	-2362 Jun 08 j 05:56	18°28'28		direct	-2354 Nov 28 j 04:07	24°36'06	
min. Earth dist.	-2362 Aug 28 j 23:24	17°28'45	46.39921 AU				
opposition	-2362 Aug 31 j 00:04	17°26'23	-17°-36'-41	conjunction	-2353 Mar 06 j 10:28	26°04'57	-16°-54'-52
direct	-2362 Nov 19 j 20:59	16°25'40		minimum elong	-2353 Mar 06 j 10:32	26°04'57	16°54'55
				max. Earth dist.	-2353 Mar 08 j 04:34	26°07'25	49.13875 AU
conjunction	-2361 Feb 26 j 02:32	17°56'02	-16°-54'-19	retrograde	-2353 Jun 17 j 16:55	27°37'33	
minimum elong	-2361 Feb 26 j 02:34	17°56'02	16°54'23	min. Earth dist.	-2353 Sep 07 j 17:39	26°38'20	47.26802 AU
max. Earth dist.	-2361 Feb 28 j 05:57	17°59'07	48.36440 AU	opposition	-2353 Sep 09 j 08:48	26°36'27	-17°-36'-35
retrograde	-2361 Jun 09 j 12:04	19°30'22		direct	-2353 Nov 29 j 09:01	25°36'34	
min. Earth dist.	-2361 Aug 30 j 06:05	18°30'44	46.51006 AU				
opposition	-2361 Sep 01 j 06:46	18°28'22	-17°-37'-56	conjunction	-2352 Mar 06 j 17:16	27°05'15	-16°-53'-41
direct	-2361 Nov 21 j 03:45	17°27'44		minimum elong	-2352 Mar 06 j 17:22	27°05'15	16°53'44
				max. Earth dist.	-2352 Mar 08 j 11:05	27°07'42	49.21496 AU
conjunction	-2360 Feb 27 j 09:47	18°57'52	-16°-55'-28	retrograde	-2352 Jun 18 j 00:13	28°37'38	



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 4

Attention, astronomical year style is used: The year -2352 in astronomical counting style is the year 2353 BCE in historical counting style.

min. Earth dist.	-2352 Sep 08 j 00:57	27° $\approx$ 38'25	47.34154 AU	max. Earth dist.	-2344 Mar 16 j 04:49	5° $\approx$ 01'10	49.69526 AU
opposition	-2352 Sep 09 j 14:30	27° $\approx$ 36'37	-17°-35'-8	retrograde	-2344 Jun 25 j 19:59	6° $\approx$ 30'15	
direct	-2352 Nov 29 j 14:01	26° $\approx$ 36'47		min. Earth dist.	-2344 Sep 16 j 03:04	5° $\approx$ 31'16	47.80452 AU
				opposition	-2344 Sep 17 j 09:13	5° $\approx$ 29'50	-17°-13'-5
conjunction	-2351 Mar 07 j 23:46	28° $\approx$ 05'16	-16°-52'-13	direct	-2344 Dec 07 j 12:31	4° $\approx$ 30'26	
minimum elong	-2351 Mar 07 j 23:52	28° $\approx$ 05'17	16°52'16				
max. Earth dist.	-2351 Mar 09 j 15:31	28° $\approx$ 07'36	49.28665 AU	conjunction	-2343 Mar 16 j 01:37	5° $\approx$ 57'53	-16°-30'-18
retrograde	-2351 Jun 19 j 07:05	29° $\approx$ 37'27		minimum elong	-2343 Mar 16 j 01:46	5° $\approx$ 57'54	16°30'21
min. Earth dist.	-2351 Sep 09 j 06:55	28° $\approx$ 38'16	47.41089 AU	max. Earth dist.	-2343 Mar 17 j 08:41	5° $\approx$ 59'41	49.73972 AU
opposition	-2351 Sep 10 j 20:07	28° $\approx$ 36'29	-17°-33'-25	retrograde	-2343 Jun 27 j 02:04	7° $\approx$ 28'46	
direct	-2351 Nov 30 j 18:23	27° $\approx$ 36'42		min. Earth dist.	-2343 Sep 17 j 10:05	6° $\approx$ 29'46	47.84600 AU
				opposition	-2343 Sep 18 j 14:23	6° $\approx$ 28'25	-17°-9'-4
conjunction	-2350 Mar 09 j 06:09	29° $\approx$ 05'02	-16°-50'-29	direct	-2343 Dec 08 j 18:20	5° $\approx$ 29'05	
minimum elong	-2350 Mar 09 j 06:15	29° $\approx$ 05'02	16°50'32				
max. Earth dist.	-2350 Mar 10 j 21:10	29° $\approx$ 07'18	49.35429 AU	conjunction	-2342 Mar 17 j 07:49	6° $\approx$ 56'26	-16°-26'-21
	-2350 Apr 20 j 08:27	0° $\approx$		minimum elong	-2342 Mar 17 j 07:56	6° $\approx$ 56'27	16°26'23
retrograde	-2350 Jun 20 j 10:21	0° $\approx$ 37'00		max. Earth dist.	-2342 Mar 18 j 14:27	6° $\approx$ 58'12	49.77927 AU
	-2350 Aug 21 j 17:39	30° $\approx$		retrograde	-2342 Jun 28 j 08:34	8° $\approx$ 27'12	
min. Earth dist.	-2350 Sep 10 j 14:32	29° $\approx$ 37'47	47.47645 AU	opposition	-2342 Sep 19 j 19:28	7° $\approx$ 26'55	-17°-4'-48
opposition	-2350 Sep 12 j 01:46	29° $\approx$ 36'06	-17°-31'-24	min. Earth dist.	-2342 Sep 18 j 16:45	7° $\approx$ 28'11	47.88212 AU
direct	-2350 Dec 02 j 02:31	28° $\approx$ 36'21		direct	-2342 Dec 09 j 23:25	6° $\approx$ 27'36	
	-2349 Mar 07 j 07:06	0° $\approx$					
conjunction	-2349 Mar 10 j 12:38	0° $\approx$ 04'31	-16°-48'-28	conjunction	-2341 Mar 18 j 13:58	7° $\approx$ 54'52	-16°-22'-11
minimum elong	-2349 Mar 10 j 12:44	0° $\approx$ 04'31	16°48'29	minimum elong	-2341 Mar 18 j 14:07	7° $\approx$ 54'53	16°22'13
max. Earth dist.	-2349 Mar 12 j 02:55	0° $\approx$ 06'45	49.41861 AU	max. Earth dist.	-2341 Mar 19 j 18:05	7° $\approx$ 56'29	49.81352 AU
retrograde	-2349 Jun 21 j 13:24	1° $\approx$ 36'17		retrograde	-2341 Jun 29 j 16:20	9° $\approx$ 25'29	
min. Earth dist.	-2349 Sep 11 j 19:54	0° $\approx$ 37'08	47.53875 AU	min. Earth dist.	-2341 Sep 19 j 22:29	8° $\approx$ 26'29	47.91296 AU
opposition	-2349 Sep 13 j 07:01	0° $\approx$ 35'27	-17°-29'-5	opposition	-2341 Sep 21 j 00:22	8° $\approx$ 25'15	-17°00'-18
	-2349 Oct 16 j 04:34	30° $\approx$		direct	-2341 Dec 11 j 02:28	7° $\approx$ 25'58	
direct	-2349 Dec 03 j 10:47	29° $\approx$ 35'45		conjunction	-2340 Mar 18 j 20:04	8° $\approx$ 53'08	-16°-17'-46
	-2348 Jan 19 j 18:48	0° $\approx$		minimum elong	-2340 Mar 18 j 20:12	8° $\approx$ 53'08	16°17'47
conjunction	-2348 Mar 10 j 18:53	1° $\approx$ 03'46	-16°-46'-9	max. Earth dist.	-2340 Mar 19 j 23:00	8° $\approx$ 54'41	49.84245 AU
minimum elong	-2348 Mar 10 j 18:59	1° $\approx$ 03'47	16°46'12	retrograde	-2340 Jun 29 j 20:34	10° $\approx$ 23'36	
max. Earth dist.	-2348 Mar 12 j 07:26	1° $\approx$ 05'54	49.47981 AU	min. Earth dist.	-2340 Sep 20 j 05:45	9° $\approx$ 24'32	47.93865 AU
retrograde	-2348 Jun 21 j 20:31	2° $\approx$ 35'22		opposition	-2340 Sep 21 j 05:23	9° $\approx$ 23'24	-16°-55'-34
min. Earth dist.	-2348 Sep 12 j 02:41	1° $\approx$ 36'13	47.59819 AU	direct	-2340 Dec 11 j 08:38	8° $\approx$ 24'08	
opposition	-2348 Sep 13 j 12:29	1° $\approx$ 34'36	-17°-26'-28	conjunction	-2339 Mar 20 j 01:55	9° $\approx$ 51'13	-16°-13'-6
direct	-2348 Dec 03 j 15:58	0° $\approx$ 34'57		minimum elong	-2339 Mar 20 j 02:05	9° $\approx$ 51'13	16°13'09
				max. Earth dist.	-2339 Mar 21 j 03:52	9° $\approx$ 52'42	49.86668 AU
conjunction	-2347 Mar 12 j 01:01	2° $\approx$ 02'50	-16°-43'-32	retrograde	-2339 Jun 30 j 23:16	11° $\approx$ 21'33	
minimum elong	-2347 Mar 12 j 01:09	2° $\approx$ 02'50	16°43'34	min. Earth dist.	-2339 Sep 21 j 10:52	10° $\approx$ 22'29	47.95980 AU
max. Earth dist.	-2347 Mar 13 j 13:45	2° $\approx$ 04'57	49.53825 AU	opposition	-2339 Sep 22 j 10:10	10° $\approx$ 21'23	-16°-50'-35
retrograde	-2347 Jun 23 j 03:18	3° $\approx$ 34'16		direct	-2339 Dec 12 j 16:00	9° $\approx$ 22'07	
min. Earth dist.	-2347 Sep 13 j 08:54	2° $\approx$ 35'09	47.65468 AU				
opposition	-2347 Sep 14 j 17:49	2° $\approx$ 33'35	-17°-23'-33	conjunction	-2338 Mar 21 j 07:46	10° $\approx$ 49'06	-16°-8'-12
direct	-2347 Dec 04 j 21:08	1° $\approx$ 33'59		minimum elong	-2338 Mar 21 j 07:55	10° $\approx$ 49'07	16°08'14
				max. Earth dist.	-2338 Mar 22 j 07:41	10° $\approx$ 50'29	49.88661 AU
conjunction	-2346 Mar 13 j 07:09	3° $\approx$ 01'44	-16°-40'-38	retrograde	-2338 Jul 02 j 05:04	12° $\approx$ 19'20	
minimum elong	-2346 Mar 13 j 07:16	3° $\approx$ 01'45	16°40'41	opposition	-2338 Sep 23 j 14:55	11° $\approx$ 19'11	-16°-45'-20
max. Earth dist.	-2346 Mar 14 j 18:01	3° $\approx$ 03'45	49.59392 AU	min. Earth dist.	-2338 Sep 22 j 17:21	11° $\approx$ 20'13	47.97706 AU
retrograde	-2346 Jun 24 j 11:49	4° $\approx$ 33'01		direct	-2338 Dec 13 j 21:17	10° $\approx$ 19'57	
opposition	-2346 Sep 15 j 22:58	3° $\approx$ 32'25	-17°-20'-20				
min. Earth dist.	-2346 Sep 14 j 14:23	3° $\approx$ 33'58	47.70831 AU	conjunction	-2337 Mar 22 j 13:46	11° $\approx$ 46'51	-16°-3'-2
direct	-2346 Dec 05 j 23:25	2° $\approx$ 32'53		minimum elong	-2337 Mar 22 j 13:55	11° $\approx$ 46'51	16°03'05
				max. Earth dist.	-2337 Mar 23 j 13:33	11° $\approx$ 48'12	49.90290 AU
conjunction	-2345 Mar 14 j 13:21	4° $\approx$ 00'32	-16°-37'-28	retrograde	-2337 Jul 03 j 10:26	13° $\approx$ 16'58	
minimum elong	-2345 Mar 14 j 13:30	4° $\approx$ 00'33	16°37'30	opposition	-2337 Sep 24 j 19:36	12° $\approx$ 16'52	-16°-39'-49
max. Earth dist.	-2345 Mar 15 j 23:38	4° $\approx$ 02'31	49.64640 AU	min. Earth dist.	-2337 Sep 23 j 22:59	12° $\approx$ 17'51	47.99071 AU
retrograde	-2345 Jun 25 j 17:31	5° $\approx$ 31'40		direct	-2337 Dec 15 j 02:47	11° $\approx$ 17'38	
min. Earth dist.	-2345 Sep 15 j 21:44	4° $\approx$ 32'37	47.75845 AU				
opposition	-2345 Sep 17 j 04:14	4° $\approx$ 31'09	-17°-16'-51	conjunction	-2336 Mar 22 j 19:27	12° $\approx$ 44'29	-15°-57'-37
direct	-2345 Dec 07 j 04:22	3° $\approx$ 31'42		minimum elong	-2336 Mar 22 j 19:37	12° $\approx$ 44'29	15°57'38
				max. Earth dist.	-2336 Mar 23 j 17:17	12° $\approx$ 45'43	49.91593 AU
conjunction	-2344 Mar 14 j 19:32	4° $\approx$ 59'15	-16°-34'-1	retrograde	-2336 Jul 03 j 18:27	14° $\approx$ 14'30	
minimum elong	-2344 Mar 14 j 19:40	4° $\approx$ 59'15	16°34'03	min. Earth dist.	-2336 Sep 24 j 03:57	13° $\approx$ 15'25	48.00131 AU



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 5

Attention, astronomical year style is used: The year -2336 in astronomical counting style is the year 2337 BCE in historical counting style.

opposition	-2336 Sep 25 j 00:11	13° <del>14</del> '27	-16°-34'-1	conjunction	-2327 Mar 31 j 23:55	21° <del>23</del> '08	-14°-57'-30
direct	-2336 Dec 15 j 04:31	12° <del>15</del> '14		minimum elong	-2327 Apr 01 j 00:06	21° <del>23</del> '09	14°57'31
				max. Earth dist.	-2327 Apr 01 j 10:15	21° <del>23</del> '43	49.86275 AU
conjunction	-2335 Mar 24 j 01:14	13° <del>42</del> '03	-15°-51'-55	retrograde	-2327 Jul 12 j 14:53	22° <del>52</del> '42	
minimum elong	-2335 Mar 24 j 01:24	13° <del>42</del> '03	15°51'58	opposition	-2327 Oct 03 j 17:14	21° <del>52</del> '58	-15°-30'-26
max. Earth dist.	-2335 Mar 24 j 22:31	13° <del>43</del> '16	49.92591 AU	min. Earth dist.	-2327 Oct 03 j 09:02	21° <del>53</del> '21	47.91829 AU
retrograde	-2335 Jul 05 j 00:25	15° <del>11</del> '59		direct	-2327 Dec 24 j 04:00	20° <del>53</del> '51	
min. Earth dist.	-2335 Sep 25 j 10:30	14° <del>12</del> '51	48.00890 AU				
opposition	-2335 Sep 26 j 04:53	14° <del>11</del> '59	-16°-27'-57	conjunction	-2326 Apr 02 j 05:36	22° <del>20</del> '32	-14°-49'-40
direct	-2335 Dec 16 j 08:23	13° <del>12</del> '49		minimum elong	-2326 Apr 02 j 05:47	22° <del>20</del> '33	14°49'42
				max. Earth dist.	-2326 Apr 02 j 13:44	22° <del>21</del> '00	49.83301 AU
conjunction	-2334 Mar 25 j 06:58	14° <del>39</del> '36	-15°-45'-58	retrograde	-2326 Jul 13 j 22:53	23° <del>50</del> '03	
minimum elong	-2334 Mar 25 j 07:09	14° <del>39</del> '36	15°45'59	opposition	-2326 Oct 04 j 21:39	22° <del>50</del> '17	-15°-22'-11
max. Earth dist.	-2334 Mar 26 j 03:25	14° <del>40</del> '46	49.93308 AU	min. Earth dist.	-2326 Oct 04 j 14:17	22° <del>50</del> '38	47.88529 AU
retrograde	-2334 Jul 06 j 02:54	16° <del>09</del> '28		direct	-2326 Dec 25 j 06:17	21° <del>51</del> '08	
opposition	-2334 Sep 27 j 09:26	15° <del>09</del> '32	-16°-21'-37				
min. Earth dist.	-2334 Sep 26 j 15:02	15° <del>10</del> '24	48.01337 AU	conjunction	-2325 Apr 03 j 11:26	23° <del>17</del> '49	-14°-41'-36
direct	-2334 Dec 17 j 15:26	14° <del>10</del> '24		minimum elong	-2325 Apr 03 j 11:37	23° <del>17</del> '50	14°41'36
				max. Earth dist.	-2325 Apr 03 j 18:45	23° <del>18</del> '14	49.79927 AU
conjunction	-2333 Mar 26 j 12:44	15° <del>37</del> '10	-15°-39'-45	retrograde	-2325 Jul 15 j 05:34	24° <del>47</del> '16	
minimum elong	-2333 Mar 26 j 12:54	15° <del>37</del> '10	15°39'47	opposition	-2325 Oct 06 j 02:01	23° <del>47</del> '30	-15°-13'-41
max. Earth dist.	-2333 Mar 27 j 07:11	15° <del>38</del> '13	49.93690 AU	min. Earth dist.	-2325 Oct 05 j 20:34	23° <del>47</del> '46	47.84857 AU
retrograde	-2333 Jul 07 j 07:41	17° <del>07</del> '00		direct	-2325 Dec 26 j 09:35	22° <del>48</del> '18	
opposition	-2333 Sep 28 j 13:58	16° <del>07</del> '07	-16°-15'-1				
min. Earth dist.	-2333 Sep 27 j 21:26	16° <del>07</del> '55	48.01440 AU	conjunction	-2324 Apr 03 j 17:10	24° <del>15</del> '00	-14°-33'-16
direct	-2333 Dec 18 j 21:26	15° <del>08</del> '02		minimum elong	-2324 Apr 03 j 17:22	24° <del>15</del> '01	14°33'17
				max. Earth dist.	-2324 Apr 03 j 23:35	24° <del>15</del> '22	49.76228 AU
conjunction	-2332 Mar 26 j 18:39	16° <del>34</del> '48	-15°-33'-16	retrograde	-2324 Jul 15 j 08:54	25° <del>44</del> '25	
minimum elong	-2332 Mar 26 j 18:50	16° <del>34</del> '48	15°33'18	opposition	-2324 Oct 06 j 06:21	24° <del>44</del> '38	-15°-4'-54
max. Earth dist.	-2332 Mar 27 j 12:58	16° <del>35</del> '50	49.93701 AU	min. Earth dist.	-2324 Oct 06 j 00:50	24° <del>44</del> '54	47.80871 AU
retrograde	-2332 Jul 07 j 13:59	18° <del>04</del> '36		direct	-2324 Dec 26 j 15:14	23° <del>45</del> '23	
opposition	-2332 Sep 28 j 18:32	17° <del>04</del> '47	-16°-8'-9				
min. Earth dist.	-2332 Sep 28 j 03:13	17° <del>05</del> '31	48.01125 AU	conjunction	-2323 Apr 04 j 22:39	25° <del>12</del> '07	-14°-24'-41
direct	-2332 Dec 19 j 01:56	16° <del>05</del> '44		minimum elong	-2323 Apr 04 j 22:51	25° <del>12</del> '08	14°24'41
				max. Earth dist.	-2323 Apr 05 j 03:17	25° <del>12</del> '23	49.72223 AU
conjunction	-2331 Mar 28 j 00:17	17° <del>32</del> '29	-15°-26'-34	retrograde	-2323 Jul 16 j 12:30	26° <del>41</del> '32	
minimum elong	-2331 Mar 28 j 00:27	17° <del>32</del> '30	15°26'36	opposition	-2323 Oct 07 j 10:53	25° <del>41</del> '44	-14°-55'-52
max. Earth dist.	-2331 Mar 28 j 16:13	17° <del>33</del> '24	49.93273 AU	min. Earth dist.	-2323 Oct 07 j 06:59	25° <del>41</del> '55	47.76598 AU
retrograde	-2331 Jul 08 j 22:39	19° <del>02</del> '16		direct	-2323 Dec 27 j 21:32	24° <del>42</del> '28	
opposition	-2331 Sep 29 j 23:08	18° <del>02</del> '30	-16°-1'-4				
min. Earth dist.	-2331 Sep 29 j 08:45	18° <del>03</del> '11	48.00341 AU	conjunction	-2322 Apr 06 j 04:29	26° <del>09</del> '14	-14°-15'-50
direct	-2331 Dec 20 j 03:33	17° <del>03</del> '28		minimum elong	-2322 Apr 06 j 04:41	26° <del>09</del> '15	14°15'52
				max. Earth dist.	-2322 Apr 06 j 09:10	26° <del>09</del> '30	49.67938 AU
conjunction	-2330 Mar 29 j 06:15	18° <del>30</del> '14	-15°-19'-38	retrograde	-2322 Jul 17 j 16:45	27° <del>38</del> '39	
minimum elong	-2330 Mar 29 j 06:27	18° <del>30</del> '14	15°19'39	opposition	-2322 Oct 08 j 15:10	26° <del>38</del> '52	-14°-46'-34
max. Earth dist.	-2330 Mar 29 j 20:58	18° <del>31</del> '04	49.92328 AU	min. Earth dist.	-2322 Oct 08 j 12:06	26° <del>39</del> '01	47.72024 AU
retrograde	-2330 Jul 10 j 03:48	19° <del>59</del> '57		direct	-2322 Dec 29 j 03:28	25° <del>39</del> '35	
opposition	-2330 Oct 01 j 03:44	19° <del>00</del> '14	-15°-53'-45				
min. Earth dist.	-2330 Sep 30 j 15:44	19° <del>00</del> '48	47.99014 AU	conjunction	-2321 Apr 07 j 10:14	27° <del>06</del> '25	-14°-6'-44
direct	-2330 Dec 21 j 08:20	18° <del>01</del> '12		minimum elong	-2321 Apr 07 j 10:27	27° <del>06</del> '26	14°06'45
				max. Earth dist.	-2321 Apr 07 j 12:48	27° <del>06</del> '34	49.63355 AU
conjunction	-2329 Mar 30 j 12:17	19° <del>27</del> '57	-15°-12'-28	retrograde	-2321 Jul 19 j 00:59	28° <del>35</del> '52	
minimum elong	-2329 Mar 30 j 12:27	19° <del>27</del> '58	15°12'30	opposition	-2321 Oct 09 j 19:34	27° <del>36</del> '06	-14°-37'00
max. Earth dist.	-2329 Mar 31 j 01:30	19° <del>28</del> '42	49.90847 AU	min. Earth dist.	-2321 Oct 09 j 17:10	27° <del>36</del> '13	47.67139 AU
retrograde	-2329 Jul 11 j 06:43	20° <del>57</del> '37		direct	-2321 Dec 30 j 05:14	26° <del>36</del> '49	
opposition	-2329 Oct 02 j 08:15	19° <del>57</del> '54	-15°-46'-12				
min. Earth dist.	-2329 Oct 01 j 20:52	19° <del>58</del> '27	47.97131 AU	conjunction	-2320 Apr 07 j 16:03	28° <del>03</del> '43	-13°-57'-23
direct	-2329 Dec 22 j 15:23	18° <del>58</del> '51		minimum elong	-2320 Apr 07 j 16:14	28° <del>03</del> '44	13°57'24
				max. Earth dist.	-2320 Apr 07 j 17:47	28° <del>03</del> '49	49.58417 AU
conjunction	-2328 Mar 30 j 18:02	20° <del>25</del> '36	-15°-5'-6	retrograde	-2320 Jul 19 j 06:59	29° <del>33</del> '13	
minimum elong	-2328 Mar 30 j 18:14	20° <del>25</del> '37	15°05'08	opposition	-2320 Oct 10 j 00:02	28° <del>33</del> '28	-14°-27'-11
max. Earth dist.	-2328 Mar 31 j 04:50	20° <del>26</del> '13	49.88809 AU	min. Earth dist.	-2320 Oct 09 j 23:42	28° <del>33</del> '29	47.61867 AU
retrograde	-2328 Jul 11 j 10:59	21° <del>55</del> '13		direct	-2320 Dec 30 j 08:59	27° <del>34</del> '11	
opposition	-2328 Oct 02 j 12:49	20° <del>55</del> '30	-15°-38'-26				
min. Earth dist.	-2328 Oct 02 j 03:33	20° <del>55</del> '56	47.94721 AU	conjunction	-2319 Apr 08 j 21:58	29° <del>01</del> '11	-13°-47'-47
direct	-2328 Dec 22 j 21:35	19° <del>56</del> '25		minimum elong	-2319 Apr 08 j 22:11	29° <del>01</del> '12	13°47'48
				max. Earth dist.	-2319 Apr 08 j 22:36	29° <del>01</del> '13	49.53084 AU



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 6

Attention, astronomical year style is used: The year -2319 in astronomical counting style is the year 2320 BCE in historical counting style.

	-2319 May 25 j 21:29	0°♊		minimum elong	-2311 Apr 16 j 22:38	6°♊44'06	12°22'45
retrograde	-2319 Jul 20 j 11:10	0°♊30'43		max. Earth dist.	-2311 Apr 16 j 11:05	6°♊43'27	48.93512 AU
	-2319 Sep 14 j 15:26	30°♊		retrograde	-2311 Jul 28 j 06:54	8°♊14'06	
opposition	-2319 Oct 11 j 04:23	29°♊30'59	-14°-17'-7	opposition	-2311 Oct 18 j 16:50	7°♊14'07	-12°-47'-59
min. Earth dist.	-2319 Oct 11 j 04:31	29°♊30'59	47.56159 AU	min. Earth dist.	-2311 Oct 19 j 02:54	7°♊13'38	46.93759 AU
direct	-2319 Dec 31 j 14:57	28°♊31'41		direct	-2310 Jan 08 j 06:38	6°♊14'19	
conjunction	-2318 Apr 10 j 03:55	29°♊58'48	-13°-37'-58	conjunction	-2310 Apr 18 j 04:40	7°♊42'17	-12°-10'-58
minimum elong	-2318 Apr 10 j 04:06	29°♊58'48	13°37'58	minimum elong	-2310 Apr 18 j 04:53	7°♊42'17	12°10'58
max. Earth dist.	-2318 Apr 10 j 02:03	29°♊58'41	49.47267 AU	max. Earth dist.	-2310 Apr 17 j 16:44	7°♊41'36	48.84463 AU
	-2318 Apr 11 j 01:06	0°♊		retrograde	-2310 Jul 29 j 14:08	9°♊12'24	
retrograde	-2318 Jul 21 j 15:53	1°♊28'23		opposition	-2310 Oct 19 j 21:38	8°♊12'22	-12°-35'-40
opposition	-2318 Oct 12 j 09:00	0°♊28'40	-14°-6'-49	min. Earth dist.	-2310 Oct 20 j 09:21	8°♊11'49	46.84418 AU
min. Earth dist.	-2318 Oct 12 j 11:22	0°♊28'33	47.49946 AU	direct	-2309 Jan 09 j 09:53	7°♊12'31	
	-2318 Nov 07 j 11:53	30°♊					
direct	-2317 Jan 01 j 20:52	29°♊29'19		conjunction	-2309 Apr 19 j 10:59	8°♊40'38	-11°-58'-57
	-2317 Feb 25 j 10:41	0°♊		minimum elong	-2309 Apr 19 j 11:11	8°♊40'39	11°58'58
conjunction	-2317 Apr 11 j 10:08	0°♊56'32	-13°-27'-55	max. Earth dist.	-2309 Apr 18 j 22:08	8°♊39'54	48.75140 AU
minimum elong	-2317 Apr 11 j 10:21	0°♊56'32	13°27'56	retrograde	-2309 Jul 30 j 19:56	10°♊10'51	
max. Earth dist.	-2317 Apr 11 j 07:36	0°♊56'23	49.40930 AU	opposition	-2309 Oct 21 j 02:14	9°♊10'49	-12°-23'-5
retrograde	-2317 Jul 22 j 19:58	2°♊26'11		min. Earth dist.	-2309 Oct 21 j 14:09	9°♊10'14	46.74780 AU
opposition	-2317 Oct 13 j 13:27	1°♊26'26	-13°-56'-18	direct	-2308 Jan 10 j 15:09	8°♊10'53	
min. Earth dist.	-2317 Oct 13 j 16:59	1°♊26'16	47.43193 AU	conjunction	-2308 Apr 19 j 17:18	9°♊39'12	-11°-46'-41
direct	-2316 Jan 03 j 03:15	0°♊27'03		minimum elong	-2308 Apr 19 j 17:31	9°♊39'13	11°46'42
conjunction	-2316 Apr 11 j 16:08	1°♊54'21	-13°-17'-39	max. Earth dist.	-2308 Apr 19 j 02:26	9°♊38'21	48.65488 AU
minimum elong	-2316 Apr 11 j 16:20	1°♊54'21	13°17'39	retrograde	-2308 Jul 31 j 01:04	11°♊09'33	
max. Earth dist.	-2316 Apr 11 j 11:05	1°♊54'03	49.34074 AU	opposition	-2308 Oct 21 j 07:10	10°♊09'29	-12°-10'-14
retrograde	-2316 Jul 23 j 04:09	3°♊24'03		min. Earth dist.	-2308 Oct 21 j 21:02	10°♊08'49	46.64795 AU
opposition	-2316 Oct 13 j 18:00	2°♊24'17	-13°-45'-32	direct	-2307 Jan 10 j 21:05	9°♊09'30	
min. Earth dist.	-2316 Oct 13 j 22:41	2°♊24'03	47.35942 AU	conjunction	-2307 Apr 20 j 23:45	10°♊38'00	-11°-34'-10
direct	-2315 Jan 03 j 05:37	1°♊24'50		minimum elong	-2307 Apr 20 j 23:57	10°♊38'01	11°34'10
conjunction	-2315 Apr 12 j 22:06	2°♊52'13	-13°-7'-9	max. Earth dist.	-2307 Apr 20 j 08:34	10°♊37'08	48.55453 AU
minimum elong	-2315 Apr 12 j 22:19	2°♊52'14	13°07'10	retrograde	-2307 Aug 01 j 04:54	12°♊08'30	
max. Earth dist.	-2315 Apr 12 j 16:01	2°♊51'52	49.26723 AU	opposition	-2307 Oct 22 j 12:05	11°♊08'24	-11°-57'-8
retrograde	-2315 Jul 24 j 11:31	4°♊21'58		min. Earth dist.	-2307 Oct 23 j 02:55	11°♊07'41	46.54376 AU
opposition	-2315 Oct 14 j 22:39	3°♊22'09	-13°-34'-33	direct	-2306 Jan 12 j 04:26	10°♊08'21	
min. Earth dist.	-2315 Oct 15 j 05:22	3°♊21'50	47.28218 AU	conjunction	-2306 Apr 22 j 06:22	11°♊37'02	-11°-21'-25
direct	-2314 Jan 04 j 08:52	2°♊22'39		minimum elong	-2306 Apr 22 j 06:35	11°♊37'03	11°21'25
conjunction	-2314 Apr 14 j 04:13	3°♊50'08	-12°-56'-25	max. Earth dist.	-2306 Apr 21 j 12:40	11°♊36'01	48.44956 AU
minimum elong	-2314 Apr 14 j 04:25	3°♊50'08	12°56'25	retrograde	-2306 Aug 02 j 12:19	13°♊07'41	
max. Earth dist.	-2314 Apr 13 j 20:57	3°♊49'43	49.18946 AU	opposition	-2306 Oct 23 j 17:01	12°♊07'32	-11°-43'-47
retrograde	-2314 Jul 25 j 16:33	5°♊19'54		min. Earth dist.	-2306 Oct 24 j 09:15	12°♊06'45	46.43474 AU
opposition	-2314 Oct 16 j 03:01	4°♊20'03	-13°-23'-18	direct	-2305 Jan 13 j 08:28	11°♊07'24	
min. Earth dist.	-2314 Oct 16 j 09:57	4°♊19'44	47.20090 AU	conjunction	-2305 Apr 23 j 13:16	12°♊36'17	-11°-8'-25
direct	-2313 Jan 05 j 13:49	3°♊20'28		minimum elong	-2305 Apr 23 j 13:27	12°♊36'17	11°08'25
conjunction	-2313 Apr 15 j 10:18	4°♊48'04	-12°-45'-27	max. Earth dist.	-2305 Apr 22 j 18:14	12°♊35'11	48.33938 AU
minimum elong	-2313 Apr 15 j 10:31	4°♊48'04	12°45'28	retrograde	-2305 Aug 03 j 20:12	14°♊07'05	
max. Earth dist.	-2313 Apr 15 j 01:02	4°♊47'32	49.10779 AU	opposition	-2305 Oct 24 j 22:14	13°♊06'51	-11°-30'-11
retrograde	-2313 Jul 26 j 19:53	6°♊17'54		min. Earth dist.	-2305 Oct 25 j 16:35	13°♊05'58	46.32038 AU
opposition	-2313 Oct 17 j 07:40	5°♊18'00	-13°-11'-48	direct	-2304 Jan 14 j 12:24	12°♊06'37	
min. Earth dist.	-2313 Oct 17 j 16:32	5°♊17'35	47.11610 AU	conjunction	-2304 Apr 23 j 19:59	13°♊35'41	-10°-55'-11
direct	-2312 Jan 06 j 20:45	4°♊18'20		minimum elong	-2304 Apr 23 j 20:12	13°♊35'42	10°55'12
conjunction	-2312 Apr 15 j 16:23	5°♊46'02	-12°-34'-13	max. Earth dist.	-2304 Apr 22 j 23:29	13°♊34'31	48.22406 AU
minimum elong	-2312 Apr 15 j 16:36	5°♊46'03	12°34'13	retrograde	-2304 Aug 04 j 03:49	15°♊06'37	
max. Earth dist.	-2312 Apr 15 j 07:06	5°♊45'30	49.02286 AU	opposition	-2304 Oct 25 j 03:20	14°♊06'19	-11°-16'-21
retrograde	-2312 Jul 26 j 22:44	7°♊15'57		min. Earth dist.	-2304 Oct 25 j 22:07	14°♊05'25	46.20091 AU
opposition	-2312 Oct 17 j 12:15	6°♊16'01	-13°00'-2	direct	-2303 Jan 14 j 16:51	13°♊05'59	
min. Earth dist.	-2312 Oct 17 j 21:39	6°♊15'33	47.02816 AU	max. Earth dist.	-2303 Apr 24 j 04:02	14°♊33'56	48.10369 AU
direct	-2311 Jan 07 j 04:23	5°♊16'16		conjunction	-2303 Apr 25 j 02:50	14°♊35'15	-10°-41'-43
conjunction	-2311 Apr 16 j 22:25	6°♊44'06	-12°-22'-43	minimum elong	-2303 Apr 25 j 03:02	14°♊35'16	10°41'43
				retrograde	-2303 Aug 05 j 08:59	16°♊06'19	



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 7

Attention, astronomical year style is used: The year -2303 in astronomical counting style is the year 2304 BCE in historical counting style.

opposition	-2303 Oct 26 j 08:33	15° $\Upsilon$ 05'56	-11°-2'-15	max. Earth dist.	-2294 May 03 j 11:17	23° $\Upsilon$ 39'25	46.86087 AU
min. Earth dist.	-2303 Oct 27 j 05:38	15° $\Upsilon$ 04'54	46.07673 AU				
direct	-2302 Jan 15 j 23:22	14° $\Upsilon$ 05'28		conjunction	-2294 May 04 j 20:56	23° $\Upsilon$ 41'24	-8°-28'-50
max. Earth dist.	-2302 Apr 25 j 10:40	15° $\Upsilon$ 33'35	47.97887 AU	minimum elong	-2294 May 04 j 21:06	23° $\Upsilon$ 41'25	8°28'50
				retrograde	-2294 Aug 15 j 01:11	25° $\Upsilon$ 14'30	
conjunction	-2302 Apr 26 j 09:53	15° $\Upsilon$ 34'56	-10°-28'-1	opposition	-2294 Nov 04 j 11:23	24° $\Upsilon$ 13'21	-8°-43'-5
minimum elong	-2302 Apr 26 j 10:05	15° $\Upsilon$ 34'57	10°28'01	min. Earth dist.	-2294 Nov 05 j 17:48	24° $\Upsilon$ 11'51	44.80453 AU
retrograde	-2302 Aug 06 j 12:07	17° $\Upsilon$ 06'10		direct	-2293 Jan 25 j 02:02	23° $\Upsilon$ 11'49	
opposition	-2302 Oct 27 j 13:47	16° $\Upsilon$ 05'41	-10°-47'-54	max. Earth dist.	-2293 May 04 j 17:05	24° $\Upsilon$ 41'46	46.70410 AU
min. Earth dist.	-2302 Oct 28 j 11:37	16° $\Upsilon$ 04'37	45.94823 AU				
direct	-2301 Jan 17 j 08:03	15° $\Upsilon$ 05'05		conjunction	-2293 May 06 j 05:02	24° $\Upsilon$ 43'53	-8°-12'-45
				minimum elong	-2293 May 06 j 05:13	24° $\Upsilon$ 43'54	8°12'44
conjunction	-2301 Apr 27 j 16:51	16° $\Upsilon$ 34'46	-10°-14'-3	retrograde	-2293 Aug 16 j 08:55	26° $\Upsilon$ 17'15	
minimum elong	-2301 Apr 27 j 17:02	16° $\Upsilon$ 34'47	10°14'02	opposition	-2293 Nov 05 j 17:45	25° $\Upsilon$ 15'59	-8°-26'-14
max. Earth dist.	-2301 Apr 26 j 15:16	16° $\Upsilon$ 33'17	47.85004 AU	min. Earth dist.	-2293 Nov 07 j 02:37	25° $\Upsilon$ 14'22	44.64389 AU
retrograde	-2301 Aug 07 j 19:47	18° $\Upsilon$ 06'10		direct	-2292 Jan 26 j 08:28	24° $\Upsilon$ 14'18	
opposition	-2301 Oct 28 j 19:01	17° $\Upsilon$ 05'35	-10°-33'-17	max. Earth dist.	-2292 May 05 j 00:42	25° $\Upsilon$ 44'32	46.54243 AU
min. Earth dist.	-2301 Oct 29 j 17:53	17° $\Upsilon$ 04'29	45.81613 AU				
direct	-2300 Jan 18 j 12:12	16° $\Upsilon$ 04'52		conjunction	-2292 May 06 j 13:19	25° $\Upsilon$ 46'42	-7°-56'-25
				minimum elong	-2292 May 06 j 13:29	25° $\Upsilon$ 46'43	7°56'24
conjunction	-2300 Apr 27 j 23:58	17° $\Upsilon$ 34'47	-9°-59'-49	retrograde	-2292 Aug 16 j 13:12	27° $\Upsilon$ 20'20	
minimum elong	-2300 Apr 28 j 00:10	17° $\Upsilon$ 34'48	9°59'50	opposition	-2292 Nov 06 j 00:09	26° $\Upsilon$ 18'57	-8°-9'-7
max. Earth dist.	-2300 Apr 26 j 21:48	17° $\Upsilon$ 33'16	47.71772 AU	min. Earth dist.	-2292 Nov 07 j 09:41	26° $\Upsilon$ 17'17	44.47834 AU
retrograde	-2300 Aug 08 j 03:19	19° $\Upsilon$ 06'23		direct	-2291 Jan 26 j 18:51	25° $\Upsilon$ 17'05	
opposition	-2300 Oct 29 j 00:32	18° $\Upsilon$ 05'42	-10°-18'-23	max. Earth dist.	-2291 May 06 j 06:17	26° $\Upsilon$ 47'29	46.37603 AU
min. Earth dist.	-2300 Oct 30 j 00:59	18° $\Upsilon$ 04'31	45.68079 AU				
direct	-2299 Jan 18 j 16:23	17° $\Upsilon$ 04'52		conjunction	-2291 May 07 j 21:29	26° $\Upsilon$ 49'49	-7°-39'-49
max. Earth dist.	-2299 Apr 28 j 03:53	18° $\Upsilon$ 33'27	47.58255 AU	minimum elong	-2291 May 07 j 21:39	26° $\Upsilon$ 49'50	7°39'49
				retrograde	-2291 Aug 17 j 20:07	28° $\Upsilon$ 23'44	
conjunction	-2299 Apr 29 j 07:00	18° $\Upsilon$ 35'02	-9°-45'-20	opposition	-2291 Nov 07 j 06:43	27° $\Upsilon$ 22'11	-7°-51'-44
minimum elong	-2299 Apr 29 j 07:11	18° $\Upsilon$ 35'02	9°45'19	min. Earth dist.	-2291 Nov 08 j 17:44	27° $\Upsilon$ 20'26	44.30834 AU
retrograde	-2299 Aug 09 j 10:49	20° $\Upsilon$ 06'49		direct	-2290 Jan 28 j 02:19	26° $\Upsilon$ 20'07	
opposition	-2299 Oct 30 j 06:01	19° $\Upsilon$ 06'04	-10°-3'-13	max. Earth dist.	-2290 May 07 j 14:08	27° $\Upsilon$ 50'48	46.20523 AU
min. Earth dist.	-2299 Oct 31 j 06:30	19° $\Upsilon$ 04'52	45.54268 AU				
direct	-2298 Jan 19 j 21:46	18° $\Upsilon$ 05'06		conjunction	-2290 May 09 j 06:04	27° $\Upsilon$ 53'12	-7°-22'-58
max. Earth dist.	-2298 Apr 29 j 09:15	19° $\Upsilon$ 33'51	47.44455 AU	minimum elong	-2290 May 09 j 06:14	27° $\Upsilon$ 53'12	7°22'57
				retrograde	-2290 Aug 19 j 03:18	29° $\Upsilon$ 27'24	
conjunction	-2298 Apr 30 j 14:17	19° $\Upsilon$ 35'33	-9°-30'-34	opposition	-2290 Nov 08 j 13:19	28° $\Upsilon$ 25'41	-7°-34'-3
minimum elong	-2298 Apr 30 j 14:29	19° $\Upsilon$ 35'34	9°30'34	min. Earth dist.	-2290 Nov 10 j 01:59	28° $\Upsilon$ 23'51	44.13425 AU
retrograde	-2298 Aug 10 j 17:30	21° $\Upsilon$ 07'34		direct	-2289 Jan 29 j 09:10	27° $\Upsilon$ 23'26	
opposition	-2298 Oct 31 j 11:39	20° $\Upsilon$ 06'43	-9°-47'-45	max. Earth dist.	-2289 May 08 j 21:22	28° $\Upsilon$ 54'22	46.03079 AU
min. Earth dist.	-2298 Nov 01 j 14:00	20° $\Upsilon$ 05'26	45.40188 AU				
direct	-2297 Jan 21 j 04:15	19° $\Upsilon$ 05'39		conjunction	-2289 May 10 j 14:39	28° $\Upsilon$ 56'51	-7°-5'-50
				minimum elong	-2289 May 10 j 14:49	28° $\Upsilon$ 56'51	7°05'50
conjunction	-2297 May 01 j 21:50	20° $\Upsilon$ 36'24	-9°-15'-32		-2289 Jun 27 j 10:04	0° $\mathcal{B}$	
minimum elong	-2297 May 01 j 22:01	20° $\Upsilon$ 36'25	9°15'32	retrograde	-2289 Aug 20 j 13:10	0° $\mathcal{B}$ 31'20	
max. Earth dist.	-2297 Apr 30 j 16:45	20° $\Upsilon$ 34'42	47.30386 AU		-2289 Oct 14 j 06:01	30° $\mathcal{R}\Upsilon$	
retrograde	-2297 Aug 11 j 22:03	22° $\Upsilon$ 08'40		opposition	-2289 Nov 09 j 20:04	29° $\Upsilon$ 29'28	-7°-16'-6
opposition	-2297 Nov 01 j 17:25	21° $\Upsilon$ 07'46	-9°-32'00	min. Earth dist.	-2289 Nov 11 j 09:01	29° $\Upsilon$ 27'37	43.95685 AU
min. Earth dist.	-2297 Nov 02 j 20:10	21° $\Upsilon$ 06'27	45.25814 AU	direct	-2288 Jan 30 j 14:30	28° $\Upsilon$ 26'59	
direct	-2296 Jan 22 j 12:41	20° $\Upsilon$ 06'35		max. Earth dist.	-2288 May 09 j 04:14	29° $\Upsilon$ 58'11	45.85310 AU
max. Earth dist.	-2296 Apr 30 j 21:57	21° $\Upsilon$ 35'49	47.16009 AU				
				conjunction	-2288 May 10 j 23:13	0° $\mathcal{B}$ 00'47	-6°-48'-26
conjunction	-2296 May 02 j 05:10	21° $\Upsilon$ 37'39	-9°00'-14	minimum elong	-2288 May 10 j 23:22	0° $\mathcal{B}$ 00'47	6°48'24
minimum elong	-2296 May 02 j 05:21	21° $\Upsilon$ 37'39	9°00'14		-2288 May 10 j 10:19	0° $\mathcal{B}$	
retrograde	-2296 Aug 12 j 05:45	23° $\Upsilon$ 10'11		retrograde	-2288 Aug 20 j 23:01	1° $\mathcal{B}$ 35'35	
opposition	-2296 Nov 01 j 23:17	22° $\Upsilon$ 09'13	-9°-15'-58	opposition	-2288 Nov 10 j 03:06	0° $\mathcal{B}$ 33'32	-6°-57'-50
min. Earth dist.	-2296 Nov 03 j 03:18	22° $\Upsilon$ 07'50	45.11119 AU	min. Earth dist.	-2288 Nov 11 j 17:52	0° $\mathcal{B}$ 31'35	43.77662 AU
direct	-2295 Jan 22 j 17:43	21° $\Upsilon$ 07'56			-2288 Dec 09 j 10:35	30° $\mathcal{R}\Upsilon$	
max. Earth dist.	-2295 May 02 j 04:56	22° $\Upsilon$ 37'26	47.01260 AU	direct	-2287 Jan 30 j 20:56	29° $\Upsilon$ 30'51	
					-2287 Mar 23 j 22:01	0° $\mathcal{B}$	
conjunction	-2295 May 03 j 12:59	22° $\Upsilon$ 39'19	-8°-44'-40	max. Earth dist.	-2287 May 10 j 13:08	1° $\mathcal{B}$ 02'26	45.67292 AU
minimum elong	-2295 May 03 j 13:10	22° $\Upsilon$ 39'20	8°44'40				
retrograde	-2295 Aug 13 j 14:19	24° $\Upsilon$ 12'08		conjunction	-2287 May 12 j 08:07	1° $\mathcal{B}$ 05'02	-6°-30'-44
opposition	-2295 Nov 03 j 05:16	23° $\Upsilon$ 11'05	-8°-59'-40	minimum elong	-2287 May 12 j 08:16	1° $\mathcal{B}$ 05'03	6°30'44
min. Earth dist.	-2295 Nov 04 j 11:08	23° $\Upsilon$ 09'36	44.96016 AU	retrograde	-2287 Aug 22 j 05:54	2° $\mathcal{B}$ 40'10	
direct	-2294 Jan 23 j 22:19	22° $\Upsilon$ 09'41		opposition	-2287 Nov 11 j 10:05	1° $\mathcal{B}$ 37'57	-6°-39'-16



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 8

Attention, astronomical year style is used: The year -2287 in astronomical counting style is the year 2288 BCE in historical counting style.

min. Earth dist.	-2287 Nov 13 j 00:56	1°835'59	43.59403 AU	conjunction	-2278 May 23 j 02:01	11°806'57	-3°-38'-50
direct	-2286 Feb 01 j 06:26	0°835'04		minimum elong	-2278 May 23 j 02:07	11°806'57	3°38'49
max. Earth dist.	-2286 May 11 j 20:03	2°806'56	45.49050 AU	retrograde	-2278 Sep 01 j 22:08	12°845'59	
				opposition	-2278 Nov 21 j 11:21	11°842'17	-3°-38'-39
conjunction	-2286 May 13 j 17:08	2°809'40	-6°-12'-46	min. Earth dist.	-2278 Nov 23 j 13:30	11°839'41	41.81521 AU
minimum elong	-2286 May 13 j 17:17	2°809'41	6°12'45	direct	-2277 Feb 11 j 05:25	10°837'32	
retrograde	-2286 Aug 23 j 14:11	3°845'09		max. Earth dist.	-2277 May 22 j 05:02	12°813'12	43.70507 AU
opposition	-2286 Nov 12 j 17:24	2°842'47	-6°-20'-24				
min. Earth dist.	-2286 Nov 14 j 09:29	2°840'46	43.40938 AU	conjunction	-2277 May 24 j 13:08	12°816'45	-3°-18'-21
direct	-2285 Feb 02 j 13:46	1°839'44		minimum elong	-2277 May 24 j 13:13	12°816'45	3°18'19
max. Earth dist.	-2285 May 13 j 05:06	3°812'00	45.30585 AU	retrograde	-2277 Sep 03 j 10:24	13°856'16	
				opposition	-2277 Nov 22 j 20:30	12°852'21	-3°-17'-4
conjunction	-2285 May 15 j 02:27	3°814'46	-5°-54'-31	min. Earth dist.	-2277 Nov 24 j 22:42	12°849'44	41.59938 AU
minimum elong	-2285 May 15 j 02:36	3°814'46	5°54'30	direct	-2276 Feb 12 j 15:11	11°847'19	
retrograde	-2285 Aug 24 j 21:19	4°850'38		max. Earth dist.	-2276 May 22 j 14:13	13°823'26	43.48870 AU
opposition	-2285 Nov 14 j 00:53	3°848'08	-6°-1'-14				
min. Earth dist.	-2285 Nov 15 j 18:04	3°846'02	43.22241 AU	conjunction	-2276 May 25 j 00:25	13°827'07	-2°-57'-34
direct	-2284 Feb 03 j 22:05	2°844'53		minimum elong	-2276 May 25 j 00:30	13°827'08	2°57'33
max. Earth dist.	-2284 May 13 j 13:12	4°817'32	45.11895 AU		-2276 Aug 10 j 08:57	15°8	
				retrograde	-2276 Sep 03 j 21:13	15°807'09	
conjunction	-2284 May 15 j 11:52	4°820'23	-5°-35'-58		-2276 Sep 28 j 06:49	15°R8	
minimum elong	-2284 May 15 j 12:00	4°820'24	5°35'57	opposition	-2276 Nov 23 j 06:00	14°803'00	-2°-55'-12
retrograde	-2284 Aug 25 j 08:47	5°856'41		min. Earth dist.	-2276 Nov 25 j 09:52	14°800'17	41.38132 AU
opposition	-2284 Nov 14 j 08:28	4°854'02	-5°-41'-45	direct	-2275 Feb 13 j 00:50	12°857'42	
min. Earth dist.	-2284 Nov 16 j 01:57	4°851'56	43.03299 AU	max. Earth dist.	-2275 May 24 j 01:51	14°834'23	43.27021 AU
direct	-2283 Feb 04 j 03:09	3°850'37					
max. Earth dist.	-2283 May 14 j 21:16	5°823'39	44.92900 AU	conjunction	-2275 May 26 j 12:01	14°838'06	-2°-36'-30
				minimum elong	-2275 May 26 j 12:05	14°838'07	2°36'28
conjunction	-2283 May 16 j 21:31	5°826'37	-5°-17'-8		-2275 Jun 09 j 20:52	15°8	
minimum elong	-2283 May 16 j 21:38	5°826'37	5°17'07	retrograde	-2275 Sep 05 j 04:58	16°818'40	
retrograde	-2283 Aug 26 j 19:59	7°803'21		opposition	-2275 Nov 24 j 15:48	15°814'18	-2°-33'-1
opposition	-2283 Nov 15 j 16:27	6°800'34	-5°-21'-59	min. Earth dist.	-2275 Nov 26 j 20:09	15°811'32	41.16130 AU
min. Earth dist.	-2283 Nov 17 j 12:11	5°858'20	42.84026 AU		-2275 Dec 06 j 01:27	15°R8	
direct	-2282 Feb 05 j 09:06	4°856'57		direct	-2274 Feb 14 j 13:41	14°808'43	
max. Earth dist.	-2282 May 16 j 06:46	6°830'27	44.73545 AU		-2274 Apr 24 j 06:16	15°8	
				max. Earth dist.	-2274 May 25 j 12:04	15°845'54	43.05002 AU
conjunction	-2282 May 18 j 07:38	6°833'28	-4°-58'-2				
minimum elong	-2282 May 18 j 07:46	6°833'29	4°58'00	conjunction	-2274 May 27 j 23:52	15°849'45	-2°-15'-9
retrograde	-2282 Aug 28 j 04:44	8°810'38		minimum elong	-2274 May 27 j 23:56	15°849'46	2°15'08
opposition	-2282 Nov 17 j 00:28	7°807'43	-5°-1'-54	retrograde	-2274 Sep 06 j 16:35	17°830'52	
min. Earth dist.	-2282 Nov 18 j 20:40	7°805'27	42.64358 AU	opposition	-2274 Nov 26 j 01:45	16°826'17	-2°-10'-31
direct	-2281 Feb 06 j 19:40	6°803'55		min. Earth dist.	-2274 Nov 28 j 06:34	16°823'29	40.93984 AU
max. Earth dist.	-2281 May 17 j 14:19	7°837'46	44.53765 AU	direct	-2273 Feb 15 j 22:38	15°820'26	
				max. Earth dist.	-2273 May 26 j 23:37	16°858'13	42.82820 AU
conjunction	-2281 May 19 j 17:53	7°840'58	-4°-38'-39				
minimum elong	-2281 May 19 j 18:00	7°840'58	4°38'38	conjunction	-2273 May 29 j 12:10	17°802'08	-1°-53'-32
retrograde	-2281 Aug 29 j 14:10	9°818'35		minimum elong	-2273 May 29 j 12:13	17°802'08	1°53'30
opposition	-2281 Nov 18 j 08:56	8°815'29	-4°-41'-32	retrograde	-2273 Sep 08 j 04:56	18°843'51	
min. Earth dist.	-2281 Nov 20 j 06:58	8°813'07	42.44267 AU	opposition	-2273 Nov 27 j 12:15	17°839'03	-1°-47'-43
direct	-2280 Feb 08 j 05:00	7°811'28		min. Earth dist.	-2273 Nov 29 j 18:36	17°836'09	40.71681 AU
max. Earth dist.	-2280 May 18 j 00:14	8°845'48	44.33543 AU	direct	-2272 Feb 17 j 06:28	16°832'56	
				max. Earth dist.	-2272 May 27 j 11:34	18°811'21	42.60483 AU
conjunction	-2280 May 20 j 04:20	8°849'03	-4°-18'-59				
minimum elong	-2280 May 20 j 04:27	8°849'03	4°18'58	conjunction	-2272 May 30 j 00:31	18°815'18	-1°-31'-37
retrograde	-2280 Aug 29 j 22:22	10°827'08		minimum elong	-2272 May 30 j 00:33	18°815'19	1°31'36
opposition	-2280 Nov 18 j 17:36	9°823'51	-4°-20'-52	retrograde	-2272 Sep 08 j 18:57	19°857'39	
min. Earth dist.	-2280 Nov 20 j 16:57	9°821'25	42.23732 AU	opposition	-2272 Nov 27 j 22:51	18°852'38	-1°-24'-37
direct	-2279 Feb 08 j 14:50	8°819'37		min. Earth dist.	-2272 Nov 30 j 05:11	18°849'44	40.49201 AU
max. Earth dist.	-2279 May 19 j 08:57	9°854'20	44.12904 AU	direct	-2271 Feb 17 j 16:49	17°846'16	
				max. Earth dist.	-2271 May 28 j 22:21	19°825'14	42.37918 AU
conjunction	-2279 May 21 j 14:59	9°857'43	-3°-59'-3				
minimum elong	-2279 May 21 j 15:05	9°857'43	3°59'02	conjunction	-2271 May 31 j 13:24	19°829'21	-1°-9'-26
retrograde	-2279 Aug 31 j 09:44	11°836'16		minimum elong	-2271 May 31 j 13:26	19°829'21	1°09'24
opposition	-2279 Nov 20 j 02:14	10°832'48	-3°-59'-54	retrograde	-2271 Sep 10 j 10:16	21°812'19	
min. Earth dist.	-2279 Nov 22 j 02:23	10°830'18	42.02808 AU	opposition	-2271 Nov 29 j 09:48	20°807'05	-1°-1'-12
direct	-2278 Feb 09 j 21:58	9°828'18		min. Earth dist.	-2271 Dec 01 j 18:07	20°804'05	40.26481 AU
max. Earth dist.	-2278 May 20 j 18:19	11°803'27	43.91869 AU	direct	-2270 Feb 19 j 03:06	19°800'27	



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 9

Attention, astronomical year style is used: The year -2270 in astronomical counting style is the year 2271 BCE in historical counting style.

max. Earth dist.	-2270 May 30 j 11:36	20° <del>8</del> 40'09	42.15068 AU	opposition	-2263 Dec 09 j 14:54	0° <del>II</del> 34'24	2°16'33
				min. Earth dist.	-2263 Dec 12 j 07:22	0° <del>II</del> 30'48	38.33658 AU
conjunction	-2270 Jun 02 j 02:50	20° <del>8</del> 44'18	0°-46'-58		-2262 Jan 05 j 12:23	30° <del>R</del> 8	
minimum elong	-2270 Jun 02 j 02:52	20° <del>8</del> 44'18	0°46'57	direct	-2262 Mar 01 j 10:38	29° <del>8</del> 25'01	
retrograde	-2270 Sep 11 j 22:27	22° <del>8</del> 27'55			-2262 Apr 24 j 07:55	0° <del>II</del>	
opposition	-2270 Nov 30 j 21:13	21° <del>8</del> 22'27	0°-37'-30	max. Earth dist.	-2262 Jun 10 j 01:21	1° <del>II</del> 10'20	40.21116 AU
min. Earth dist.	-2270 Dec 03 j 06:13	21° <del>8</del> 19'23	40.03441 AU				
direct	-2269 Feb 20 j 16:41	20° <del>8</del> 15'32		conjunction	-2262 Jun 13 j 02:11	1° <del>II</del> 15'24	2°22'12
max. Earth dist.	-2269 May 31 j 22:52	21° <del>8</del> 55'47	41.91874 AU	minimum elong	-2262 Jun 13 j 02:07	1° <del>II</del> 15'23	2°22'15
				retrograde	-2262 Sep 22 j 18:45	3° <del>II</del> 04'51	
conjunction	-2269 Jun 03 j 16:24	22° <del>8</del> 00'08	0°-24'-14	opposition	-2262 Dec 11 j 05:16	1° <del>II</del> 57'02	2°42'29
minimum elong	-2269 Jun 03 j 16:25	22° <del>8</del> 00'08	0°24'11	min. Earth dist.	-2262 Dec 13 j 21:45	1° <del>II</del> 53'25	38.08773 AU
retrograde	-2269 Sep 13 j 11:22	23° <del>8</del> 44'25		direct	-2261 Mar 02 j 23:34	0° <del>II</del> 47'17	
opposition	-2269 Dec 02 j 08:56	22° <del>8</del> 38'42	0°-13'-29	max. Earth dist.	-2261 Jun 11 j 17:05	2° <del>II</del> 33'27	39.96139 AU
min. Earth dist.	-2269 Dec 04 j 19:15	22° <del>8</del> 35'33	39.80057 AU				
direct	-2268 Feb 22 j 04:12	21° <del>8</del> 31'28		conjunction	-2261 Jun 14 j 18:49	2° <del>II</del> 38'37	2°46'56
max. Earth dist.	-2268 Jun 01 j 11:58	23° <del>8</del> 12'23	41.68304 AU	minimum elong	-2261 Jun 14 j 18:44	2° <del>II</del> 38'36	2°46'58
				retrograde	-2261 Sep 24 j 12:13	4° <del>II</del> 28'56	
conjunction	-2268 Jun 04 j 06:33	23° <del>8</del> 16'50	0°-1'-15	opposition	-2261 Dec 12 j 20:13	3° <del>II</del> 20'49	3°08'41
minimum elong	-2268 Jun 04 j 06:32	23° <del>8</del> 16'50	0°01'14	min. Earth dist.	-2261 Dec 15 j 14:05	3° <del>II</del> 17'06	37.83863 AU
behind sun begin	-2268 Jun 04 j 00:00	23° <del>8</del> 16'25		direct	-2260 Mar 03 j 11:35	2° <del>II</del> 10'43	
behind sun end	-2268 Jun 04 j 13:04	23° <del>8</del> 17'14		max. Earth dist.	-2260 Jun 12 j 10:19	3° <del>II</del> 57'51	39.71145 AU
asc. node	-2268 Jun 23 j 15:14	23° <del>8</del> 47'25					
retrograde	-2268 Sep 13 j 23:17	25° <del>8</del> 01'48		conjunction	-2260 Jun 15 j 11:55	4° <del>II</del> 03'03	3°11'52
opposition	-2268 Dec 02 j 21:06	23° <del>8</del> 55'49	0°10'48	minimum elong	-2260 Jun 15 j 11:49	4° <del>II</del> 03'02	3°11'55
min. Earth dist.	-2268 Dec 05 j 09:05	23° <del>8</del> 52'33	39.56307 AU	retrograde	-2260 Sep 25 j 06:51	5° <del>II</del> 54'16	
direct	-2267 Feb 22 j 16:14	22° <del>8</del> 48'15		opposition	-2260 Dec 13 j 11:23	4° <del>II</del> 45'51	3°35'07
max. Earth dist.	-2267 Jun 03 j 01:03	24° <del>8</del> 29'50	41.44390 AU	min. Earth dist.	-2260 Dec 16 j 04:54	4° <del>II</del> 42'09	37.58928 AU
				direct	-2259 Mar 05 j 01:44	3° <del>II</del> 35'25	
conjunction	-2267 Jun 05 j 20:52	24° <del>8</del> 34'23	0°22'04	max. Earth dist.	-2259 Jun 14 j 02:07	5° <del>II</del> 23'25	39.46084 AU
minimum elong	-2267 Jun 05 j 20:51	24° <del>8</del> 34'23	0°22'07				
retrograde	-2267 Sep 15 j 14:32	26° <del>8</del> 20'02		conjunction	-2259 Jun 17 j 05:29	5° <del>II</del> 28'46	3°37'00
opposition	-2267 Dec 04 j 09:28	25° <del>8</del> 13'46	0°35'23	minimum elong	-2259 Jun 17 j 05:22	5° <del>II</del> 28'46	3°37'03
min. Earth dist.	-2267 Dec 06 j 21:46	25° <del>8</del> 10'28	39.32226 AU	retrograde	-2259 Sep 27 j 02:14	7° <del>II</del> 20'56	
direct	-2266 Feb 24 j 02:56	24° <del>8</del> 05'51		opposition	-2259 Dec 15 j 03:15	6° <del>II</del> 12'13	4°01'46
max. Earth dist.	-2266 Jun 04 j 13:55	25° <del>8</del> 48'04	41.20136 AU	min. Earth dist.	-2259 Dec 17 j 22:24	6° <del>II</del> 08'24	37.33918 AU
				direct	-2258 Mar 06 j 16:44	5° <del>II</del> 01'25	
conjunction	-2266 Jun 07 j 11:41	25° <del>8</del> 52'47	0°45'36	max. Earth dist.	-2258 Jun 15 j 20:35	6° <del>II</del> 50'27	39.20901 AU
minimum elong	-2266 Jun 07 j 11:39	25° <del>8</del> 52'46	0°45'38				
retrograde	-2266 Sep 17 j 06:08	27° <del>8</del> 39'09		conjunction	-2258 Jun 18 j 23:47	6° <del>II</del> 55'51	4°02'20
opposition	-2266 Dec 05 j 22:16	26° <del>8</del> 32'34	1°00'16	minimum elong	-2258 Jun 18 j 23:39	6° <del>II</del> 55'51	4°02'24
min. Earth dist.	-2266 Dec 08 j 12:43	26° <del>8</del> 29'09	39.07854 AU	retrograde	-2258 Sep 28 j 20:00	8° <del>II</del> 48'57	
direct	-2265 Feb 25 j 14:21	25° <del>8</del> 24'18		opposition	-2258 Dec 16 j 19:35	7° <del>II</del> 39'57	4°28'38
max. Earth dist.	-2265 Jun 06 j 05:00	27° <del>8</del> 07'17	40.95621 AU	min. Earth dist.	-2258 Dec 19 j 15:16	7° <del>II</del> 36'04	37.08765 AU
				direct	-2257 Mar 08 j 11:35	6° <del>II</del> 28'47	
conjunction	-2265 Jun 09 j 02:51	27° <del>8</del> 12'02	1°09'23	max. Earth dist.	-2257 Jun 17 j 13:22	8° <del>II</del> 18'43	38.95557 AU
minimum elong	-2265 Jun 09 j 02:49	27° <del>8</del> 12'02	1°09'26				
retrograde	-2265 Sep 18 j 21:05	28° <del>8</del> 59'07		conjunction	-2257 Jun 20 j 18:27	8° <del>II</del> 24'18	4°27'51
opposition	-2265 Dec 07 j 11:27	27° <del>8</del> 52'14	1°25'25	minimum elong	-2257 Jun 20 j 18:18	8° <del>II</del> 24'17	4°27'54
min. Earth dist.	-2265 Dec 10 j 01:58	27° <del>8</del> 48'48	38.83255 AU	retrograde	-2257 Sep 30 j 16:07	10° <del>II</del> 18'22	
direct	-2264 Feb 27 j 05:46	26° <del>8</del> 43'36		opposition	-2257 Dec 18 j 12:30	9° <del>II</del> 09'03	4°55'42
max. Earth dist.	-2264 Jun 06 j 18:12	28° <del>8</del> 27'16	40.70903 AU	min. Earth dist.	-2257 Dec 21 j 08:56	9° <del>II</del> 05'06	36.83457 AU
				direct	-2256 Mar 09 j 04:02	7° <del>II</del> 57'29	
conjunction	-2264 Jun 09 j 18:04	28° <del>8</del> 32'11	1°33'25	max. Earth dist.	-2256 Jun 18 j 08:01	9° <del>II</del> 48'25	38.70016 AU
minimum elong	-2264 Jun 09 j 18:01	28° <del>8</del> 32'11	1°33'28				
	-2264 Aug 10 j 16:44	0° <del>II</del>		conjunction	-2256 Jun 21 j 13:40	9° <del>II</del> 54'05	4°53'32
retrograde	-2264 Sep 19 j 13:01	0° <del>II</del> 20'02		minimum elong	-2256 Jun 21 j 13:31	9° <del>II</del> 54'04	4°53'36
	-2264 Oct 29 j 16:35	30° <del>R</del> 8		retrograde	-2256 Oct 01 j 08:56	11° <del>II</del> 49'10	
opposition	-2264 Dec 08 j 00:59	29° <del>8</del> 12'50	1°50'51	opposition	-2256 Dec 19 j 06:05	10° <del>II</del> 39'29	5°22'58
min. Earth dist.	-2264 Dec 10 j 16:41	29° <del>8</del> 09'18	38.58509 AU	min. Earth dist.	-2256 Dec 22 j 03:58	10° <del>II</del> 35'26	36.57959 AU
direct	-2263 Feb 27 j 19:47	28° <del>8</del> 03'49		direct	-2255 Mar 10 j 20:53	9° <del>II</del> 27'30	
max. Earth dist.	-2263 Jun 08 j 10:12	29° <del>8</del> 48'20	40.46043 AU	max. Earth dist.	-2255 Jun 20 j 03:02	11° <del>II</del> 19'26	38.44304 AU
conjunction	-2263 Jun 11 j 09:59	29° <del>8</del> 53'17	1°57'41	conjunction	-2255 Jun 23 j 09:29	11° <del>II</del> 25'13	5°19'22
minimum elong	-2263 Jun 11 j 09:55	29° <del>8</del> 53'17	1°57'44	minimum elong	-2255 Jun 23 j 09:18	11° <del>II</del> 25'12	5°19'24
	-2263 Jun 15 j 11:21	0° <del>II</del>		retrograde	-2255 Oct 03 j 04:43	13° <del>II</del> 21'17	
retrograde	-2263 Sep 21 j 02:48	1° <del>II</del> 41'55		opposition	-2255 Dec 20 j 23:53	12° <del>II</del> 11'14	5°50'24



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 10

Attention, astronomical year style is used: The year -2255 in astronomical counting style is the year 2256 BCE in historical counting style.

min. Earth dist.	-2255 Dec 23 j 21:50	12°II07'09	36.32312 AU	conjunction	-2246 Jul 08 j 21:21	26°II08'55	9°14'30
direct	-2254 Mar 12 j 13:28	10°II58'49		minimum elong	-2246 Jul 08 j 21:01	26°II08'53	9°14'34
max. Earth dist.	-2254 Jun 21 j 21:52	12°II51'42	38.18431 AU	retrograde	-2246 Oct 18 j 22:16	28°II15'14	
				opposition	-2245 Jan 04 j 21:20	27°II01'39	10°00'22
conjunction	-2254 Jun 25 j 05:56	12°II57'39	5°45'20	min. Earth dist.	-2245 Jan 07 j 22:17	26°II57'09	34.03829 AU
minimum elong	-2254 Jun 25 j 05:44	12°II57'38	5°45'23	direct	-2245 Mar 27 j 03:36	25°II45'08	
retrograde	-2254 Oct 05 j 02:19	14°II54'44		max. Earth dist.	-2245 Jul 07 j 12:55	27°II48'54	35.88523 AU
opposition	-2254 Dec 22 j 18:32	13°II44'18	6°17'59				
min. Earth dist.	-2254 Dec 25 j 18:14	13°II40'06	36.06552 AU	conjunction	-2245 Jul 10 j 23:10	27°II55'33	9°40'21
direct	-2253 Mar 14 j 04:55	12°II31'25		minimum elong	-2245 Jul 10 j 22:50	27°II55'31	9°40'24
max. Earth dist.	-2253 Jun 23 j 19:01	14°II25'26	37.92471 AU		-2245 Oct 06 j 15:19	0°☾	
				retrograde	-2245 Oct 21 j 03:32	0°☾03'10	
conjunction	-2253 Jun 27 j 02:44	14°II31'24	6°11'25		-2245 Nov 04 j 14:10	30°RII	
minimum elong	-2253 Jun 27 j 02:31	14°II31'23	6°11'27	opposition	-2244 Jan 06 j 21:59	28°II49'12	10°27'52
retrograde	-2253 Oct 06 j 23:19	16°II29'32		min. Earth dist.	-2244 Jan 09 j 23:34	28°II44'38	33.79233 AU
opposition	-2253 Dec 24 j 13:37	15°II18'41	6°45'41	direct	-2244 Mar 28 j 03:28	27°II32'15	
min. Earth dist.	-2253 Dec 27 j 12:58	15°II14'28	35.80742 AU	max. Earth dist.	-2244 Jul 08 j 16:29	29°II37'28	35.63695 AU
direct	-2252 Mar 15 j 00:51	14°II05'20					
max. Earth dist.	-2252 Jun 24 j 14:46	16°II00'21	37.66487 AU	conjunction	-2244 Jul 12 j 02:01	29°II44'07	10°06'01
				minimum elong	-2244 Jul 12 j 01:40	29°II44'06	10°06'05
conjunction	-2252 Jun 28 j 00:03	16°II06'29	6°37'34		-2244 Jul 20 j 04:42	0°☾	
minimum elong	-2252 Jun 27 j 23:50	16°II06'28	6°37'38	retrograde	-2244 Oct 22 j 06:20	1°☾53'04	
retrograde	-2252 Oct 07 j 22:52	18°II05'40		opposition	-2243 Jan 07 j 23:23	0°☾38'42	10°55'12
opposition	-2252 Dec 25 j 09:12	16°II54'25	7°13'29	min. Earth dist.	-2243 Jan 11 j 01:20	0°☾34'05	33.54736 AU
min. Earth dist.	-2252 Dec 28 j 09:34	16°II50'07	35.54973 AU		-2243 Feb 03 j 23:19	30°RII	
direct	-2251 Mar 16 j 20:32	15°II40'35		direct	-2243 Mar 30 j 05:03	29°II21'18	
max. Earth dist.	-2251 Jun 26 j 13:28	17°II36'48	37.40554 AU		-2243 May 21 j 23:35	0°☾	
				max. Earth dist.	-2243 Jul 10 j 19:06	1°☾27'50	35.38980 AU
conjunction	-2251 Jun 29 j 22:05	17°II42'57	7°03'47				
minimum elong	-2251 Jun 29 j 21:50	17°II42'56	7°03'50	conjunction	-2243 Jul 14 j 05:28	1°☾34'38	10°31'29
retrograde	-2251 Oct 09 j 20:25	19°II43'13		minimum elong	-2243 Jul 14 j 05:07	1°☾34'36	10°31'31
opposition	-2251 Dec 27 j 05:35	18°II31'32	7°41'21	retrograde	-2243 Oct 24 j 10:57	3°☾44'54	
min. Earth dist.	-2251 Dec 30 j 06:09	18°II27'12	35.29291 AU	opposition	-2242 Jan 10 j 01:33	2°☾30'08	11°22'17
direct	-2250 Mar 18 j 18:36	17°II17'14		min. Earth dist.	-2242 Jan 13 j 03:17	2°☾25'30	33.30370 AU
max. Earth dist.	-2250 Jun 28 j 11:05	19°II14'34	37.14746 AU	direct	-2242 Apr 01 j 06:27	1°☾12'16	
				max. Earth dist.	-2242 Jul 12 j 23:27	3°☾20'12	35.14383 AU
conjunction	-2250 Jul 01 j 20:32	19°II20'50	7°30'01				
minimum elong	-2250 Jul 01 j 20:17	19°II20'49	7°30'05	conjunction	-2242 Jul 16 j 09:47	3°☾27'04	10°56'40
retrograde	-2250 Oct 11 j 19:41	21°II22'13		minimum elong	-2242 Jul 16 j 09:24	3°☾27'02	10°56'44
opposition	-2250 Dec 29 j 02:27	20°II10'09	8°09'15	retrograde	-2242 Oct 26 j 14:23	5°☾38'40	
min. Earth dist.	-2249 Jan 01 j 02:45	20°II05'48	35.03788 AU	opposition	-2241 Jan 12 j 04:41	4°☾23'30	11°49'06
direct	-2249 Mar 20 j 14:51	18°II55'23		min. Earth dist.	-2241 Jan 15 j 07:18	4°☾18'46	33.06156 AU
max. Earth dist.	-2249 Jun 30 j 10:23	20°II53'56	36.89115 AU	direct	-2241 Apr 03 j 07:42	3°☾05'08	
				max. Earth dist.	-2241 Jul 15 j 04:46	5°☾14'30	34.89982 AU
conjunction	-2249 Jul 03 j 19:47	21°II00'16	7°56'15				
minimum elong	-2249 Jul 03 j 19:30	21°II00'15	7°56'17	conjunction	-2241 Jul 18 j 14:42	5°☾21'24	11°21'33
retrograde	-2249 Oct 13 j 17:08	23°II02'49		minimum elong	-2241 Jul 18 j 14:20	5°☾21'23	11°21'35
opposition	-2249 Dec 31 j 00:14	21°II50'21	8°37'07	retrograde	-2241 Oct 28 j 20:11	7°☾34'22	
min. Earth dist.	-2248 Jan 03 j 01:15	21°II45'56	34.78494 AU	opposition	-2240 Jan 14 j 08:27	6°☾18'45	12°15'33
direct	-2248 Mar 21 j 10:50	20°II35'09		min. Earth dist.	-2240 Jan 17 j 09:57	6°☾14'04	32.82175 AU
max. Earth dist.	-2248 Jul 01 j 10:29	22°II34'59	36.63711 AU	direct	-2240 Apr 04 j 09:36	4°☾59'54	
				max. Earth dist.	-2240 Jul 16 j 10:00	7°☾10'39	34.65827 AU
conjunction	-2248 Jul 04 j 19:25	22°II41'21	8°22'25				
minimum elong	-2248 Jul 04 j 19:08	22°II41'19	8°22'28	conjunction	-2240 Jul 19 j 20:17	7°☾17'39	11°46'02
retrograde	-2248 Oct 14 j 17:39	24°II45'07		minimum elong	-2240 Jul 19 j 19:54	7°☾17'37	11°46'06
opposition	-2248 Dec 31 j 22:29	23°II32'16	9°04'58	retrograde	-2240 Oct 30 j 01:58	9°☾31'59	
min. Earth dist.	-2247 Jan 03 j 22:39	23°II27'52	34.53426 AU	opposition	-2239 Jan 15 j 13:08	8°☾15'55	12°41'36
direct	-2247 Mar 23 j 07:23	22°II16'37		min. Earth dist.	-2239 Jan 18 j 15:27	8°☾11'09	32.58490 AU
max. Earth dist.	-2247 Jul 03 j 10:10	24°II17'43	36.38497 AU	direct	-2239 Apr 06 j 12:07	6°☾56'34	
				max. Earth dist.	-2239 Jul 18 j 18:00	9°☾08'53	34.42007 AU
conjunction	-2247 Jul 06 j 19:59	24°II24'12	8°48'31				
minimum elong	-2247 Jul 06 j 19:41	24°II24'10	8°48'33	conjunction	-2239 Jul 22 j 02:44	9°☾15'49	12°10'05
retrograde	-2247 Oct 16 j 19:38	26°II29'14		minimum elong	-2239 Jul 22 j 02:21	9°☾15'47	12°10'08
opposition	-2246 Jan 02 j 21:28	25°II16'01	9°32'43	retrograde	-2239 Nov 01 j 09:19	11°☾31'31	
min. Earth dist.	-2246 Jan 05 j 22:55	25°II11'31	34.28554 AU	opposition	-2238 Jan 17 j 18:31	10°☾15'01	13°07'09
direct	-2246 Mar 25 j 03:09	23°II59'56		min. Earth dist.	-2238 Jan 20 j 19:35	10°☾10'17	32.35178 AU
max. Earth dist.	-2246 Jul 05 j 12:23	26°II02'26	36.13450 AU	direct	-2238 Apr 08 j 17:35	8°☾55'10	



Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 11

Attention, astronomical year style is used: The year -2238 in astronomical counting style is the year 2239 BCE in historical counting style.

max. Earth dist.	-2238 Jul 21 j 00:44	11° $\overline{08}$ °53	34.18599 AU	minimum elong	-2230 Aug 10 j 23:32	28° $\overline{32}$ °31	15°14'37
					-2230 Sep 21 j 10:30	0° $\overline{00}$	
conjunction	-2238 Jul 24 j 09:52	11° $\overline{15}$ °55	12°33'36	retrograde	-2230 Nov 21 j 18:03	1° $\overline{00}$ °52	
minimum elong	-2238 Jul 24 j 09:27	11° $\overline{15}$ °53	12°33'40		-2229 Jan 25 j 16:26	30° $\overline{R}$ $\overline{36}$	
retrograde	-2238 Nov 03 j 18:34	13° $\overline{33}$ °01		opposition	-2229 Feb 06 j 12:41	29° $\overline{40}$ °52	16°22'08
opposition	-2237 Jan 20 j 00:55	12° $\overline{16}$ °04	13°32'07	min. Earth dist.	-2229 Feb 09 j 06:05	29° $\overline{36}$ °25	30.48941 AU
min. Earth dist.	-2237 Jan 23 j 01:53	12° $\overline{11}$ °20	32.12338 AU	direct	-2229 Apr 28 j 00:29	28° $\overline{17}$ °16	
direct	-2237 Apr 10 j 21:50	10° $\overline{55}$ °44			-2229 Jul 21 j 09:46	0° $\overline{00}$	
max. Earth dist.	-2237 Jul 23 j 10:40	13° $\overline{11}$ °06	33.95691 AU	max. Earth dist.	-2229 Aug 10 j 15:15	0° $\overline{44}$ °48	32.32077 AU
conjunction	-2237 Jul 26 j 17:42	13° $\overline{18}$ °01	12°56'32	conjunction	-2229 Aug 13 j 14:02	0° $\overline{51}$ °29	15°30'15
minimum elong	-2237 Jul 26 j 17:19	13° $\overline{17}$ °59	12°56'35	minimum elong	-2229 Aug 13 j 13:42	0° $\overline{51}$ °27	15°30'17
retrograde	-2237 Nov 06 j 03:20	15° $\overline{36}$ °31		retrograde	-2229 Nov 24 j 10:17	3° $\overline{21}$ °06	
opposition	-2236 Jan 22 j 08:14	14° $\overline{19}$ °09	13°56'26	opposition	-2228 Feb 09 j 03:14	2° $\overline{00}$ °44	16°38'32
min. Earth dist.	-2236 Jan 25 j 08:05	14° $\overline{14}$ °28	31.90017 AU	min. Earth dist.	-2228 Feb 11 j 19:45	1° $\overline{56}$ °20	30.30965 AU
direct	-2236 Apr 12 j 05:03	12° $\overline{58}$ °23		direct	-2228 Apr 29 j 12:49	0° $\overline{36}$ °43	
max. Earth dist.	-2236 Jul 24 j 19:24	15° $\overline{15}$ °13	33.73341 AU	max. Earth dist.	-2228 Aug 12 j 09:00	3° $\overline{05}$ °48	32.14173 AU
conjunction	-2236 Jul 28 j 02:19	15° $\overline{22}$ °11	13°18'48	conjunction	-2228 Aug 15 j 05:04	3° $\overline{12}$ °17	15°44'41
minimum elong	-2236 Jul 28 j 01:55	15° $\overline{22}$ °09	13°18'51	minimum elong	-2228 Aug 15 j 04:44	3° $\overline{12}$ °15	15°44'44
retrograde	-2236 Nov 07 j 15:31	17° $\overline{42}$ °07		retrograde	-2228 Nov 26 j 01:47	5° $\overline{43}$ °09	
opposition	-2235 Jan 23 j 16:10	16° $\overline{24}$ °21	14°20'01	opposition	-2227 Feb 10 j 18:31	4° $\overline{22}$ °24	16°53'34
min. Earth dist.	-2235 Jan 26 j 14:59	16° $\overline{19}$ °41	31.68273 AU	min. Earth dist.	-2227 Feb 13 j 09:31	4° $\overline{18}$ °04	30.13644 AU
direct	-2235 Apr 14 j 12:57	15° $\overline{03}$ °08		direct	-2227 May 02 j 04:06	2° $\overline{58}$ °01	
max. Earth dist.	-2235 Jul 27 j 06:49	17° $\overline{21}$ °37	33.51553 AU	max. Earth dist.	-2227 Aug 15 j 01:28	5° $\overline{28}$ °24	31.96999 AU
conjunction	-2235 Jul 30 j 11:59	17° $\overline{28}$ °30	13°40'19	conjunction	-2227 Aug 17 j 20:36	5° $\overline{34}$ °51	15°57'47
minimum elong	-2235 Jul 30 j 11:35	17° $\overline{28}$ °28	13°40'21	minimum elong	-2227 Aug 17 j 20:18	5° $\overline{34}$ °49	15°57'49
retrograde	-2235 Nov 10 j 01:41	19° $\overline{49}$ °52		retrograde	-2227 Nov 28 j 20:26	8° $\overline{06}$ °56	
opposition	-2234 Jan 26 j 01:18	18° $\overline{31}$ °43	14°42'48	opposition	-2226 Feb 13 j 10:41	6° $\overline{45}$ °48	17°07'07
min. Earth dist.	-2234 Jan 28 j 23:54	18° $\overline{27}$ °03	31.47077 AU	min. Earth dist.	-2226 Feb 15 j 23:39	6° $\overline{41}$ °36	29.97083 AU
direct	-2234 Apr 16 j 21:02	17° $\overline{10}$ °06		direct	-2226 May 04 j 20:09	5° $\overline{21}$ °04	
max. Earth dist.	-2234 Jul 29 j 17:53	19° $\overline{30}$ °07	33.30326 AU	max. Earth dist.	-2226 Aug 17 j 20:45	7° $\overline{52}$ °56	31.80631 AU
conjunction	-2234 Aug 01 j 22:13	19° $\overline{37}$ °01	14°01'02	conjunction	-2226 Aug 20 j 12:45	7° $\overline{59}$ °07	16°09'27
minimum elong	-2234 Aug 01 j 21:49	19° $\overline{36}$ °59	14°01'05	minimum elong	-2226 Aug 20 j 12:29	7° $\overline{59}$ °05	16°09'30
retrograde	-2234 Nov 12 j 13:37	21° $\overline{59}$ °47		retrograde	-2226 Dec 01 j 12:39	10° $\overline{32}$ °22	
opposition	-2233 Jan 28 j 11:14	20° $\overline{41}$ °17	15°04'42	opposition	-2225 Feb 16 j 03:49	9° $\overline{10}$ °54	17°19'06
min. Earth dist.	-2233 Jan 31 j 08:11	20° $\overline{36}$ °42	31.26426 AU	min. Earth dist.	-2225 Feb 18 j 15:21	9° $\overline{06}$ °47	29.81353 AU
direct	-2233 Apr 19 j 06:03	19° $\overline{19}$ °16		direct	-2225 May 07 j 12:33	7° $\overline{45}$ °51	
max. Earth dist.	-2233 Aug 01 j 06:06	21° $\overline{40}$ °51	33.09619 AU	max. Earth dist.	-2225 Aug 20 j 15:23	10° $\overline{19}$ °00	31.65183 AU
conjunction	-2233 Aug 04 j 09:28	21° $\overline{47}$ °43	14°20'53	conjunction	-2225 Aug 23 j 05:24	10° $\overline{25}$ °02	16°19'36
minimum elong	-2233 Aug 04 j 09:05	21° $\overline{47}$ °41	14°20'55	minimum elong	-2225 Aug 23 j 05:09	10° $\overline{25}$ °01	16°19'37
retrograde	-2233 Nov 15 j 01:19	24° $\overline{11}$ °55		retrograde	-2225 Dec 04 j 08:03	12° $\overline{59}$ °24	
opposition	-2232 Jan 30 j 22:16	22° $\overline{53}$ °03	15°25'40	opposition	-2224 Feb 18 j 21:28	11° $\overline{37}$ °38	17°29'23
min. Earth dist.	-2232 Feb 02 j 19:20	22° $\overline{48}$ °26	31.06288 AU	min. Earth dist.	-2224 Feb 21 j 05:53	11° $\overline{33}$ °42	29.66559 AU
direct	-2232 Apr 20 j 14:10	21° $\overline{30}$ °38		direct	-2224 May 09 j 05:45	10° $\overline{12}$ °17	
max. Earth dist.	-2232 Aug 02 j 19:33	23° $\overline{53}$ °47	32.89439 AU	max. Earth dist.	-2224 Aug 22 j 11:37	12° $\overline{46}$ °48	31.50712 AU
conjunction	-2232 Aug 05 j 21:23	24° $\overline{00}$ °35	14°39'48	conjunction	-2224 Aug 24 j 22:44	12° $\overline{52}$ °35	16°28'08
minimum elong	-2232 Aug 05 j 20:59	24° $\overline{00}$ °33	14°39'51	minimum elong	-2224 Aug 24 j 22:31	12° $\overline{52}$ °34	16°28'11
retrograde	-2232 Nov 16 j 14:46	26° $\overline{26}$ °11			-2224 Oct 27 j 01:16	15° $\overline{00}$	
opposition	-2231 Feb 01 j 10:07	25° $\overline{06}$ °57	15°45'37	retrograde	-2224 Dec 06 j 02:38	15° $\overline{28}$ °02	
min. Earth dist.	-2231 Feb 04 j 05:18	25° $\overline{02}$ °26	30.86650 AU		-2223 Jan 16 j 10:33	15° $\overline{R}$ $\overline{00}$	
direct	-2231 Apr 23 j 00:37	23° $\overline{44}$ °08		opposition	-2223 Feb 20 j 16:03	14° $\overline{05}$ °59	17°37'55
max. Earth dist.	-2231 Aug 05 j 08:47	26° $\overline{08}$ °44	32.69760 AU	min. Earth dist.	-2223 Feb 22 j 23:03	14° $\overline{02}$ °08	29.52736 AU
				direct	-2223 May 11 j 22:34	12° $\overline{40}$ °25	
conjunction	-2231 Aug 08 j 10:14	26° $\overline{15}$ °33	14°57'43		-2223 Aug 18 j 11:46	15° $\overline{00}$	
minimum elong	-2231 Aug 08 j 09:53	26° $\overline{15}$ °31	14°57'45	max. Earth dist.	-2223 Aug 25 j 08:10	15° $\overline{16}$ °10	31.37271 AU
retrograde	-2231 Nov 19 j 03:56	28° $\overline{42}$ °32					
opposition	-2230 Feb 03 j 22:55	27° $\overline{22}$ °55	16°04'28	conjunction	-2223 Aug 27 j 16:32	15° $\overline{21}$ °44	16°34'59
min. Earth dist.	-2230 Feb 06 j 18:06	27° $\overline{18}$ °22	30.67525 AU	minimum elong	-2223 Aug 27 j 16:22	15° $\overline{21}$ °43	16°35'01
direct	-2230 Apr 25 j 10:58	25° $\overline{59}$ °42		retrograde	-2223 Dec 08 j 22:26	17° $\overline{58}$ °12	
max. Earth dist.	-2230 Aug 08 j 00:43	28° $\overline{25}$ °53	32.50627 AU	opposition	-2222 Feb 23 j 11:09	16° $\overline{35}$ °55	17°44'37
				min. Earth dist.	-2222 Feb 25 j 14:36	16° $\overline{32}$ °19	29.39909 AU
conjunction	-2230 Aug 10 j 23:54	28° $\overline{32}$ °33	15°14'34	direct	-2222 May 14 j 17:10	15° $\overline{10}$ °10	



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 12

Attention, astronomical year style is used: The year -2222 in astronomical counting style is the year 2223 BCE in historical counting style.

max. Earth dist.	-2222 Aug 28 j 05:05	17° $\Omega$ 47'06	31.24846 AU	max. Earth dist.	-2214 Sep 18 j 19:36	8° $\mp$ 32'51	30.61090 AU
conjunction	-2222 Aug 30 j 10:56	17° $\Omega$ 52'27	16°40'06	conjunction	-2214 Sep 20 j 01:36	8° $\mp$ 35'54	16°14'38
minimum elong	-2222 Aug 30 j 10:48	17° $\Omega$ 52'26	16°40'09	minimum elong	-2214 Sep 20 j 01:46	8° $\mp$ 35'55	16°14'40
retrograde	-2222 Dec 11 j 17:05	20° $\Omega$ 29'52		retrograde	-2213 Jan 01 j 15:25	11° $\mp$ 17'22	
opposition	-2221 Feb 26 j 07:10	19° $\Omega$ 07'23	17°49'25	opposition	-2213 Mar 19 j 15:42	9° $\mp$ 53'45	17°15'47
min. Earth dist.	-2221 Feb 28 j 09:10	19° $\Omega$ 03'53	29.28076 AU	min. Earth dist.	-2213 Mar 20 j 18:43	9° $\mp$ 51'51	28.67792 AU
direct	-2221 May 17 j 10:35	17° $\Omega$ 41'30		direct	-2213 Jun 07 j 13:18	8° $\mp$ 27'19	
max. Earth dist.	-2221 Aug 31 j 03:16	20° $\Omega$ 19'36	31.13442 AU				
conjunction	-2221 Sep 02 j 05:39	20° $\Omega$ 24'38	16°43'27	conjunction	-2213 Sep 22 j 21:41	11° $\mp$ 12'59	16°02'52
minimum elong	-2221 Sep 02 j 05:33	20° $\Omega$ 24'37	16°43'28	minimum elong	-2213 Sep 22 j 21:52	11° $\mp$ 13'00	16°02'52
retrograde	-2221 Dec 14 j 13:37	23° $\Omega$ 02'54		max. Earth dist.	-2213 Sep 21 j 19:58	11° $\mp$ 10'22	30.57862 AU
opposition	-2220 Feb 29 j 03:41	21° $\Omega$ 40'16	17°52'18	retrograde	-2212 Jan 04 j 11:56	13° $\mp$ 54'28	
min. Earth dist.	-2220 Mar 02 j 02:20	21° $\Omega$ 36'59	29.17202 AU	opposition	-2212 Mar 21 j 14:53	12° $\mp$ 30'47	17°02'16
direct	-2220 May 19 j 06:07	20° $\Omega$ 14'15		min. Earth dist.	-2212 Mar 22 j 15:20	12° $\mp$ 29'03	28.64953 AU
max. Earth dist.	-2220 Sep 02 j 00:33	22° $\Omega$ 53'17	31.03009 AU	direct	-2212 Jun 09 j 12:43	11° $\mp$ 04'25	
conjunction	-2220 Sep 04 j 00:56	22° $\Omega$ 58'08	16°44'58	conjunction	-2212 Sep 24 j 17:38	13° $\mp$ 49'51	15°49'09
minimum elong	-2220 Sep 04 j 00:52	22° $\Omega$ 58'08	16°45'01	minimum elong	-2212 Sep 24 j 17:54	13° $\mp$ 49'52	15°49'10
retrograde	-2220 Dec 16 j 09:49	25° $\Omega$ 37'12		max. Earth dist.	-2212 Sep 23 j 19:12	13° $\mp$ 47'33	30.55873 AU
opposition	-2219 Mar 03 j 00:42	24° $\Omega$ 14'23	17°53'12	retrograde	-2211 Jan 06 j 09:39	16° $\mp$ 31'14	
min. Earth dist.	-2219 Mar 04 j 21:41	24° $\Omega$ 11'14	29.07273 AU	opposition	-2211 Mar 24 j 13:45	15° $\mp$ 07'32	16°46'40
direct	-2219 May 22 j 00:11	22° $\Omega$ 48'16		min. Earth dist.	-2211 Mar 25 j 09:34	15° $\mp$ 06'09	28.63337 AU
max. Earth dist.	-2219 Sep 05 j 00:03	25° $\Omega$ 28'18	30.93548 AU	direct	-2211 Jun 12 j 12:50	13° $\mp$ 41'17	
conjunction	-2219 Sep 06 j 20:41	25° $\Omega$ 32'48	16°44'39	conjunction	-2211 Sep 27 j 13:30	16° $\mp$ 26'23	15°33'33
minimum elong	-2219 Sep 06 j 20:39	25° $\Omega$ 32'48	16°44'40	minimum elong	-2211 Sep 27 j 13:46	16° $\mp$ 26'25	15°33'33
retrograde	-2219 Dec 19 j 05:27	28° $\Omega$ 12'32		max. Earth dist.	-2211 Sep 26 j 19:00	16° $\mp$ 24'30	30.55142 AU
opposition	-2218 Mar 05 j 22:26	26° $\Omega$ 49'35	17°52'06	retrograde	-2210 Jan 09 j 05:34	19° $\mp$ 07'38	
min. Earth dist.	-2218 Mar 07 j 16:23	26° $\Omega$ 46'37	28.98262 AU	opposition	-2210 Mar 27 j 12:53	17° $\mp$ 43'58	16°29'02
direct	-2218 May 24 j 22:20	25° $\Omega$ 23'22		min. Earth dist.	-2210 Mar 28 j 06:02	17° $\mp$ 42'46	28.62965 AU
max. Earth dist.	-2218 Sep 07 j 21:40	28° $\Omega$ 04'04	30.85042 AU	direct	-2210 Jun 15 j 10:35	16° $\mp$ 17'52	
conjunction	-2218 Sep 09 j 16:31	28° $\Omega$ 08'25	16°42'28	conjunction	-2210 Sep 30 j 08:59	19° $\mp$ 02'33	15°16'06
minimum elong	-2218 Sep 09 j 16:32	28° $\Omega$ 08'25	16°42'30	minimum elong	-2210 Sep 30 j 09:18	19° $\mp$ 02'35	15°16'07
retrograde	-2218 Oct 30 j 09:00	0° $\mp$		max. Earth dist.	-2210 Sep 29 j 18:28	19° $\mp$ 01'04	30.55687 AU
opposition	-2217 Mar 08 j 20:36	29° $\Omega$ 25'37	17°48'58	retrograde	-2209 Jan 12 j 02:51	21° $\mp$ 43'33	
min. Earth dist.	-2217 Mar 10 j 12:01	29° $\Omega$ 22'50	28.90191 AU	opposition	-2209 Mar 30 j 11:47	20° $\mp$ 19'58	16°09'27
direct	-2217 May 27 j 18:28	27° $\Omega$ 59'19		min. Earth dist.	-2209 Mar 31 j 00:26	20° $\mp$ 19'05	28.63813 AU
max. Earth dist.	-2217 Sep 10 j 21:57	0° $\mp$ 40'49	30.77512 AU	direct	-2209 Jun 18 j 10:32	18° $\mp$ 54'04	
conjunction	-2217 Sep 12 j 12:48	0° $\mp$ 44'45	16°38'23	conjunction	-2209 Oct 03 j 04:18	21° $\mp$ 38'14	14°56'52
minimum elong	-2217 Sep 12 j 12:50	0° $\mp$ 44'45	16°38'24	minimum elong	-2209 Oct 03 j 04:37	21° $\mp$ 38'16	14°56'53
retrograde	-2217 Dec 24 j 23:09	3° $\mp$ 25'31		max. Earth dist.	-2209 Oct 02 j 17:08	21° $\mp$ 37'06	30.57447 AU
opposition	-2216 Mar 10 j 19:02	2° $\mp$ 02'16	17°43'47	retrograde	-2208 Jan 14 j 23:01	24° $\mp$ 18'55	
min. Earth dist.	-2216 Mar 12 j 07:52	1° $\mp$ 59'40	28.83060 AU	opposition	-2208 Apr 01 j 10:25	22° $\mp$ 55'27	15°47'57
direct	-2216 May 29 j 16:14	0° $\mp$ 35'55		min. Earth dist.	-2208 Apr 01 j 20:17	22° $\mp$ 54'45	28.65849 AU
max. Earth dist.	-2216 Sep 12 j 20:08	3° $\mp$ 17'50	30.70981 AU	direct	-2208 Jun 20 j 07:30	21° $\mp$ 29'47	
conjunction	-2216 Sep 14 j 09:01	3° $\mp$ 21'36	16°32'24	conjunction	-2208 Oct 04 j 23:23	24° $\mp$ 13'21	14°35'56
minimum elong	-2216 Sep 14 j 09:07	3° $\mp$ 21'36	16°32'26	minimum elong	-2208 Oct 04 j 23:45	24° $\mp$ 13'23	14°35'56
retrograde	-2216 Dec 26 j 21:20	6° $\mp$ 02'43		max. Earth dist.	-2208 Oct 04 j 16:21	24° $\mp$ 12'38	30.60390 AU
opposition	-2215 Mar 13 j 17:42	4° $\mp$ 39'19	17°36'32	retrograde	-2207 Jan 16 j 17:45	26° $\mp$ 53'37	
min. Earth dist.	-2215 Mar 15 j 03:18	4° $\mp$ 36'57	28.76916 AU	opposition	-2207 Apr 04 j 08:55	25° $\mp$ 30'17	15°24'40
direct	-2215 Jun 01 j 15:13	3° $\mp$ 12'55		min. Earth dist.	-2207 Apr 04 j 14:55	25° $\mp$ 29'52	28.68995 AU
max. Earth dist.	-2215 Sep 15 j 20:45	5° $\mp$ 55'23	30.65482 AU	direct	-2207 Jun 23 j 07:05	24° $\mp$ 04'54	
conjunction	-2215 Sep 17 j 05:24	5° $\mp$ 58'43	16°24'29	conjunction	-2207 Oct 07 j 17:57	26° $\mp$ 47'45	14°13'23
minimum elong	-2215 Sep 17 j 05:32	5° $\mp$ 58'44	16°24'30	minimum elong	-2207 Oct 07 j 18:18	26° $\mp$ 47'47	14°13'23
retrograde	-2215 Dec 29 j 17:08	8° $\mp$ 40'03		max. Earth dist.	-2207 Oct 07 j 13:31	26° $\mp$ 47'18	30.64431 AU
opposition	-2214 Mar 16 j 16:43	7° $\mp$ 16'32	17°27'13	retrograde	-2206 Jan 19 j 13:17	29° $\mp$ 27'31	
min. Earth dist.	-2214 Mar 17 j 23:55	7° $\mp$ 14'20	28.71796 AU	opposition	-2206 Apr 07 j 07:13	28° $\mp$ 04'21	14°59'41
direct	-2214 Jun 04 j 14:19	5° $\mp$ 50'07		min. Earth dist.	-2206 Apr 07 j 10:01	28° $\mp$ 04'09	28.73220 AU
				direct	-2206 Jun 26 j 03:30	26° $\mp$ 39'15	
				conjunction	-2206 Oct 10 j 12:19	29° $\mp$ 21'17	13°49'18
				minimum elong	-2206 Oct 10 j 12:43	29° $\mp$ 21'20	13°49'18



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 13

Attention, astronomical year style is used: The year -2206 in astronomical counting style is the year 2207 BCE in historical counting style.

max. Earth dist.	-2206 Oct 10 j 12:11	29° $\mathbb{M}$ 21'16	30.69540 AU	max. Earth dist.	-2198 Oct 30 j 18:33	19° $\mathbb{A}$ 02'33	31.46126 AU
	-2206 Oct 26 j 16:28	0° $\mathbb{A}$		retrograde	-2197 Feb 10 j 15:29	21° $\mathbb{A}$ 32'02	
retrograde	-2205 Jan 22 j 07:10	2° $\mathbb{A}$ 00'28		opposition	-2197 Apr 30 j 15:51	20° $\mathbb{A}$ 10'37	10°14'45
opposition	-2205 Apr 10 j 05:08	0° $\mathbb{A}$ 37'28	14°33'05	min. Earth dist.	-2197 Apr 29 j 13:22	20° $\mathbb{A}$ 12'23	29.56015 AU
min. Earth dist.	-2205 Apr 10 j 04:53	0° $\mathbb{A}$ 37'29	28.78459 AU	direct	-2197 Jul 19 j 16:03	18° $\mathbb{A}$ 48'27	
	-2205 May 03 j 13:47	30° $\mathbb{R}$ $\mathbb{M}$					
direct	-2205 Jun 29 j 01:30	29° $\mathbb{M}$ 12'40		conjunction	-2197 Nov 01 j 05:59	21° $\mathbb{A}$ 19'59	9°18'57
	-2205 Aug 21 j 14:44	0° $\mathbb{A}$		minimum elong	-2197 Nov 01 j 06:20	21° $\mathbb{A}$ 20'01	9°18'57
				max. Earth dist.	-2197 Nov 02 j 10:45	21° $\mathbb{A}$ 22'44	31.60288 AU
conjunction	-2205 Oct 13 j 06:01	1° $\mathbb{A}$ 53'47	13°23'47	retrograde	-2196 Feb 13 j 02:50	23° $\mathbb{A}$ 50'48	
minimum elong	-2205 Oct 13 j 06:24	1° $\mathbb{A}$ 53'50	13°23'47	min. Earth dist.	-2196 May 01 j 02:19	22° $\mathbb{A}$ 31'40	29.70290 AU
max. Earth dist.	-2205 Oct 13 j 08:04	1° $\mathbb{A}$ 54'00	30.75656 AU	opposition	-2196 May 02 j 08:04	22° $\mathbb{A}$ 29'41	9°38'17
retrograde	-2204 Jan 25 j 01:37	4° $\mathbb{A}$ 32'19		direct	-2196 Jul 21 j 09:55	21° $\mathbb{A}$ 07'56	
opposition	-2204 Apr 12 j 02:33	3° $\mathbb{A}$ 09'28	14°04'59				
min. Earth dist.	-2204 Apr 11 j 22:41	3° $\mathbb{A}$ 09'44	28.84688 AU	conjunction	-2196 Nov 02 j 17:45	23° $\mathbb{A}$ 38'08	8°44'41
direct	-2204 Jun 30 j 22:23	1° $\mathbb{A}$ 44'57		minimum elong	-2196 Nov 02 j 18:06	23° $\mathbb{A}$ 38'10	8°44'39
				max. Earth dist.	-2196 Nov 04 j 00:41	23° $\mathbb{A}$ 41'04	31.75367 AU
conjunction	-2204 Oct 14 j 23:27	4° $\mathbb{A}$ 25'06	12°56'55	retrograde	-2195 Feb 14 j 14:53	26° $\mathbb{A}$ 07'50	
minimum elong	-2204 Oct 14 j 23:52	4° $\mathbb{A}$ 25'09	12°56'54	opposition	-2195 May 04 j 23:37	24° $\mathbb{A}$ 47'03	9°01'16
max. Earth dist.	-2204 Oct 15 j 05:42	4° $\mathbb{A}$ 25'44	30.82744 AU	min. Earth dist.	-2195 May 03 j 14:47	24° $\mathbb{A}$ 49'13	29.85483 AU
retrograde	-2203 Jan 26 j 17:38	7° $\mathbb{A}$ 02'51		direct	-2195 Jul 24 j 00:57	23° $\mathbb{A}$ 25'44	
opposition	-2203 Apr 14 j 23:28	5° $\mathbb{A}$ 40'11	13°35'30				
min. Earth dist.	-2203 Apr 14 j 17:11	5° $\mathbb{A}$ 40'37	28.91860 AU	conjunction	-2195 Nov 05 j 05:04	25° $\mathbb{A}$ 54'34	8°09'56
direct	-2203 Jul 03 j 19:37	4° $\mathbb{A}$ 15'58		minimum elong	-2195 Nov 05 j 05:23	25° $\mathbb{A}$ 54'36	8°09'54
				max. Earth dist.	-2195 Nov 06 j 15:46	25° $\mathbb{A}$ 57'50	31.91307 AU
conjunction	-2203 Oct 17 j 16:08	6° $\mathbb{A}$ 55'03	12°28'49	retrograde	-2194 Feb 17 j 00:46	28° $\mathbb{A}$ 23'09	
minimum elong	-2203 Oct 17 j 16:31	6° $\mathbb{A}$ 55'05	12°28'49	min. Earth dist.	-2194 May 06 j 03:33	27° $\mathbb{A}$ 04'59	30.01499 AU
max. Earth dist.	-2203 Oct 18 j 00:30	6° $\mathbb{A}$ 55'53	30.90795 AU	opposition	-2194 May 07 j 14:35	27° $\mathbb{A}$ 02'41	8°23'49
retrograde	-2202 Jan 29 j 11:34	9° $\mathbb{A}$ 31'57		direct	-2194 Jul 26 j 16:50	25° $\mathbb{A}$ 41'48	
opposition	-2202 Apr 17 j 19:51	8° $\mathbb{A}$ 09'28	13°04'43				
min. Earth dist.	-2202 Apr 17 j 09:24	8° $\mathbb{A}$ 10'11	29.00001 AU	conjunction	-2194 Nov 07 j 15:28	28° $\mathbb{A}$ 09'16	7°34'48
direct	-2202 Jul 06 j 15:16	6° $\mathbb{A}$ 45'32		minimum elong	-2194 Nov 07 j 15:47	28° $\mathbb{A}$ 09'17	7°34'45
				max. Earth dist.	-2194 Nov 09 j 03:46	28° $\mathbb{A}$ 12'39	32.08013 AU
conjunction	-2202 Oct 20 j 08:10	9° $\mathbb{A}$ 23'27	11°59'33		-2193 Jan 02 j 11:32	0° $\mathbb{M}$	
minimum elong	-2202 Oct 20 j 08:35	9° $\mathbb{A}$ 23'30	11°59'32	retrograde	-2193 Feb 19 j 12:12	0° $\mathbb{M}$ 36'43	
max. Earth dist.	-2202 Oct 20 j 20:40	9° $\mathbb{A}$ 24'41	30.99810 AU		-2193 Apr 10 j 22:44	30° $\mathbb{R}$ $\mathbb{A}$	
retrograde	-2201 Feb 01 j 03:00	11° $\mathbb{A}$ 59'28		min. Earth dist.	-2193 May 08 j 14:17	29° $\mathbb{A}$ 19'05	30.18272 AU
opposition	-2201 Apr 20 j 15:44	10° $\mathbb{A}$ 37'08	12°32'44	opposition	-2193 May 10 j 04:44	29° $\mathbb{A}$ 16'34	7°46'01
min. Earth dist.	-2201 Apr 20 j 03:05	10° $\mathbb{A}$ 38'00	29.09119 AU	direct	-2193 Jul 29 j 06:26	27° $\mathbb{A}$ 56'07	
direct	-2201 Jul 09 j 12:17	9° $\mathbb{A}$ 13'31			-2193 Oct 31 j 01:24	0° $\mathbb{M}$	
conjunction	-2201 Oct 22 j 23:30	11° $\mathbb{A}$ 50'13	11°29'12	conjunction	-2193 Nov 10 j 01:29	0° $\mathbb{M}$ 22'12	6°59'23
minimum elong	-2201 Oct 22 j 23:53	11° $\mathbb{A}$ 50'15	11°29'12	minimum elong	-2193 Nov 10 j 01:46	0° $\mathbb{M}$ 22'14	6°59'21
max. Earth dist.	-2201 Oct 23 j 14:34	11° $\mathbb{A}$ 51'42	31.09829 AU	max. Earth dist.	-2193 Nov 11 j 17:06	0° $\mathbb{M}$ 25'53	32.25405 AU
retrograde	-2200 Feb 03 j 19:44	14° $\mathbb{A}$ 25'15		retrograde	-2192 Feb 21 j 20:25	2° $\mathbb{M}$ 48'29	
opposition	-2200 Apr 22 j 10:35	13° $\mathbb{A}$ 03'07	11°59'38	min. Earth dist.	-2192 May 10 j 02:18	1° $\mathbb{M}$ 31'15	30.35710 AU
min. Earth dist.	-2200 Apr 21 j 17:38	13° $\mathbb{A}$ 04'15	29.19259 AU	opposition	-2192 May 11 j 18:04	1° $\mathbb{M}$ 28'40	7°07'59
direct	-2200 Jul 11 j 08:46	11° $\mathbb{A}$ 39'48		direct	-2192 Jul 30 j 20:05	0° $\mathbb{M}$ 08'39	
conjunction	-2200 Oct 24 j 14:12	14° $\mathbb{A}$ 15'16	10°57'53	conjunction	-2192 Nov 11 j 10:42	2° $\mathbb{M}$ 33'20	6°23'46
minimum elong	-2200 Oct 24 j 14:37	14° $\mathbb{A}$ 15'18	10°57'51	minimum elong	-2192 Nov 11 j 10:58	2° $\mathbb{M}$ 33'22	6°23'43
max. Earth dist.	-2200 Oct 25 j 09:03	14° $\mathbb{A}$ 17'06	31.20871 AU	max. Earth dist.	-2192 Nov 13 j 03:35	2° $\mathbb{M}$ 37'07	32.43419 AU
retrograde	-2199 Feb 05 j 09:59	16° $\mathbb{A}$ 49'17		retrograde	-2191 Feb 23 j 06:34	4° $\mathbb{M}$ 58'27	
min. Earth dist.	-2199 Apr 24 j 09:44	15° $\mathbb{A}$ 28'40	29.30455 AU	min. Earth dist.	-2191 May 12 j 11:37	3° $\mathbb{M}$ 41'44	30.53761 AU
opposition	-2199 Apr 25 j 05:07	15° $\mathbb{A}$ 27'21	11°25'32	opposition	-2191 May 14 j 06:41	3° $\mathbb{M}$ 38'57	6°29'48
direct	-2199 Jul 14 j 02:46	14° $\mathbb{A}$ 04'24		direct	-2191 Aug 02 j 08:22	2° $\mathbb{M}$ 19'20	
conjunction	-2199 Oct 27 j 04:06	16° $\mathbb{A}$ 38'34	10°25'40	conjunction	-2191 Nov 13 j 19:09	4° $\mathbb{M}$ 42'38	5°48'02
minimum elong	-2199 Oct 27 j 04:29	16° $\mathbb{A}$ 38'36	10°25'39	minimum elong	-2191 Nov 13 j 19:23	4° $\mathbb{M}$ 42'39	5°48'00
max. Earth dist.	-2199 Oct 28 j 02:13	16° $\mathbb{A}$ 40'42	31.32979 AU	max. Earth dist.	-2191 Nov 15 j 14:47	4° $\mathbb{M}$ 46'37	32.61993 AU
retrograde	-2198 Feb 08 j 00:43	19° $\mathbb{A}$ 11'32		retrograde	-2190 Feb 25 j 14:46	7° $\mathbb{M}$ 06'34	
opposition	-2198 Apr 27 j 22:49	17° $\mathbb{A}$ 49'51	10°50'32	min. Earth dist.	-2190 May 14 j 22:28	5° $\mathbb{M}$ 50'12	30.72389 AU
min. Earth dist.	-2198 Apr 26 j 23:09	17° $\mathbb{A}$ 51'26	29.42708 AU	opposition	-2190 May 16 j 18:44	5° $\mathbb{M}$ 47'21	5°51'33
direct	-2198 Jul 16 j 22:52	16° $\mathbb{A}$ 27'16		direct	-2190 Aug 04 j 19:58	4° $\mathbb{M}$ 28'08	
conjunction	-2198 Oct 29 j 17:22	19° $\mathbb{A}$ 00'08	9°52'39	conjunction	-2190 Nov 16 j 02:58	6° $\mathbb{M}$ 50'01	5°12'15
minimum elong	-2198 Oct 29 j 17:45	19° $\mathbb{A}$ 00'10	9°52'38	minimum elong	-2190 Nov 16 j 03:11	6° $\mathbb{M}$ 50'03	5°12'13



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 14

Attention, astronomical year style is used: The year -2190 in astronomical counting style is the year 2191 BCE in historical counting style.

max. Earth dist.	-2190 Nov 18 j 00:27	6°M54'09	32.81125 AU	conjunction	-2182 Dec 01 j 15:07	22°M44'10	0°31'37
retrograde	-2189 Feb 27 j 23:10	9°M12'45		minimum elong	-2182 Dec 01 j 15:08	22°M44'10	0°31'35
min. Earth dist.	-2189 May 17 j 06:27	7°M56'51	30.91584 AU	max. Earth dist.	-2182 Dec 04 j 04:55	22°M49'25	34.54806 AU
opposition	-2189 May 19 j 05:39	7°M53'50	5°13'20	retrograde	-2181 Mar 15 j 10:50	24°M57'48	
direct	-2189 Aug 07 j 09:16	6°M35'00		min. Earth dist.	-2181 Jun 02 j 03:39	23°M45'23	32.66605 AU
				opposition	-2181 Jun 04 j 18:32	23°M41'33	0°15'29
conjunction	-2189 Nov 18 j 09:52	8°M55'30	4°36'29	direct	-2181 Aug 23 j 22:58	22°M26'04	
minimum elong	-2189 Nov 18 j 10:03	8°M55'31	4°36'28	desc. node	-2181 Nov 11 j 16:04	23°M52'31	
max. Earth dist.	-2189 Nov 20 j 09:24	8°M59'46	33.00799 AU				
retrograde	-2188 Mar 01 j 07:24	11°M17'01		conjunction	-2181 Dec 03 j 16:57	24°M36'15	0°-2'-3
min. Earth dist.	-2188 May 18 j 14:56	10°M01'30	31.11376 AU	minimum elong	-2181 Dec 03 j 16:57	24°M36'15	0°02'06
opposition	-2188 May 20 j 15:58	9°M58'23	4°35'10	behind sun begin	-2181 Dec 03 j 10:36	24°M35'44	
direct	-2188 Aug 08 j 19:53	8°M39'56		behind sun end	-2181 Dec 03 j 23:19	24°M36'45	
				max. Earth dist.	-2181 Dec 06 j 08:17	24°M41'35	34.78634 AU
conjunction	-2188 Nov 19 j 16:05	10°M59'04	4°00'49	retrograde	-2180 Mar 16 j 13:01	26°M48'48	
minimum elong	-2188 Nov 19 j 16:15	10°M59'04	4°00'46	min. Earth dist.	-2180 Jun 03 j 06:23	25°M36'49	32.90551 AU
max. Earth dist.	-2188 Nov 21 j 18:18	11°M03'32	33.21065 AU	opposition	-2180 Jun 05 j 22:55	25°M32'55	0°-19'-55
retrograde	-2187 Mar 03 j 11:52	13°M19'23		direct	-2180 Aug 25 j 05:37	24°M17'50	
min. Earth dist.	-2187 May 20 j 21:59	12°M04'18	31.31781 AU				
opposition	-2187 May 23 j 01:21	12°M01'03	3°57'10	conjunction	-2180 Dec 04 j 18:04	26°M26'50	0°-35'-9
direct	-2187 Aug 11 j 07:24	10°M43'00		minimum elong	-2180 Dec 04 j 18:03	26°M26'50	0°35'13
				max. Earth dist.	-2180 Dec 07 j 09:59	26°M32'10	35.02682 AU
conjunction	-2187 Nov 21 j 21:30	13°M00'45	3°25'17	retrograde	-2179 Mar 18 j 15:55	28°M38'19	
minimum elong	-2187 Nov 21 j 21:38	13°M00'46	3°25'15	min. Earth dist.	-2179 Jun 05 j 08:56	27°M26'44	33.14728 AU
max. Earth dist.	-2187 Nov 24 j 01:09	13°M05'20	33.41940 AU	opposition	-2179 Jun 08 j 02:49	27°M22'45	0°-54'-49
	-2186 Jan 28 j 12:49	15°M		direct	-2179 Aug 27 j 09:44	26°M08'04	
retrograde	-2186 Mar 05 j 17:12	15°M19'55					
	-2186 Apr 12 j 00:47	15°RM		conjunction	-2179 Dec 06 j 18:51	28°M15'53	-1°-7'-48
min. Earth dist.	-2186 May 23 j 04:02	14°M05'18	31.52850 AU	minimum elong	-2179 Dec 06 j 18:49	28°M15'53	1°07'51
opposition	-2186 May 25 j 10:06	14°M01'54	3°19'22	max. Earth dist.	-2179 Dec 09 j 12:40	28°M21'21	35.26915 AU
direct	-2186 Aug 13 j 16:25	12°M44'15			-2178 Feb 05 j 11:46	0°M	
	-2186 Nov 23 j 18:34	15°M		retrograde	-2178 Mar 20 j 14:47	0°M26'20	
					-2178 May 04 j 07:21	30°RM	
conjunction	-2186 Nov 24 j 02:20	15°M00'41	2°49'56	min. Earth dist.	-2178 Jun 07 j 11:41	29°M15'03	33.39068 AU
minimum elong	-2186 Nov 24 j 02:27	15°M00'42	2°49'54	opposition	-2178 Jun 10 j 06:01	29°M11'04	-1°-29'-9
max. Earth dist.	-2186 Nov 26 j 09:13	15°M05'30	33.63446 AU	direct	-2178 Aug 29 j 14:49	27°M56'45	
retrograde	-2185 Mar 07 j 20:01	17°M18'41			-2178 Dec 07 j 01:40	0°M	
min. Earth dist.	-2185 May 25 j 10:29	16°M04'29	31.74543 AU				
opposition	-2185 May 27 j 18:03	16°M01'00	2°41'51	conjunction	-2178 Dec 08 j 18:51	0°M03'24	-1°-39'-57
	-2185 Jul 13 j 12:54	15°RM		minimum elong	-2178 Dec 08 j 18:48	0°M03'23	1°40'00
direct	-2185 Aug 16 j 01:57	14°M43'47		max. Earth dist.	-2178 Dec 11 j 12:40	0°M08'49	35.51286 AU
	-2185 Sep 17 j 12:49	15°M		retrograde	-2177 Mar 22 j 13:48	2°M12'47	
				min. Earth dist.	-2177 Jun 09 j 12:17	1°M01'54	33.63566 AU
conjunction	-2185 Nov 26 j 06:27	16°M58'55	2°14'51	opposition	-2177 Jun 12 j 08:33	0°M57'49	-2°-2'-53
minimum elong	-2185 Nov 26 j 06:32	16°M58'55	2°14'49		-2177 Jul 28 j 12:27	30°RM	
max. Earth dist.	-2185 Nov 28 j 14:21	17°M03'47	33.85544 AU	direct	-2177 Aug 31 j 18:13	29°M43'50	
retrograde	-2184 Mar 09 j 00:41	19°M15'48			-2177 Oct 03 j 23:38	0°M	
min. Earth dist.	-2184 May 26 j 14:24	18°M02'07	31.96835 AU				
opposition	-2184 May 29 j 01:02	17°M58'28	2°04'38	conjunction	-2177 Dec 10 j 18:25	1°M49'19	-2°-11'-33
direct	-2184 Aug 17 j 08:34	16°M41'41		minimum elong	-2177 Dec 10 j 18:20	1°M49'19	2°11'37
				max. Earth dist.	-2177 Dec 13 j 14:18	1°M54'52	35.75790 AU
conjunction	-2184 Nov 27 j 10:00	18°M55'32	1°40'05	retrograde	-2176 Mar 23 j 11:07	3°M57'40	
minimum elong	-2184 Nov 27 j 10:04	18°M55'32	1°40'02	min. Earth dist.	-2176 Jun 10 j 14:04	2°M47'02	33.88227 AU
max. Earth dist.	-2184 Nov 29 j 20:47	19°M00'37	34.08182 AU	opposition	-2176 Jun 13 j 10:20	2°M42'59	-2°-36'-2
retrograde	-2183 Mar 11 j 03:16	21°M11'19		direct	-2176 Sep 01 j 21:19	1°M29'20	
min. Earth dist.	-2183 May 28 j 20:08	19°M58'02	32.19658 AU				
opposition	-2183 May 31 j 07:38	19°M54'21	1°27'49	conjunction	-2176 Dec 11 j 17:17	3°M33'40	-2°-42'-36
direct	-2183 Aug 19 j 14:41	18°M38'00		minimum elong	-2176 Dec 11 j 17:11	3°M33'40	2°42'40
				max. Earth dist.	-2176 Dec 14 j 13:33	3°M39'12	36.00474 AU
conjunction	-2183 Nov 29 j 12:47	20°M50'36	1°05'39	retrograde	-2175 Mar 25 j 10:03	5°M40'59	
minimum elong	-2183 Nov 29 j 12:49	20°M50'37	1°05'37	min. Earth dist.	-2175 Jun 12 j 13:02	4°M30'45	34.13102 AU
max. Earth dist.	-2183 Dec 02 j 00:40	20°M55'44	34.31302 AU	opposition	-2175 Jun 15 j 11:31	4°M26'35	-3°-8'-32
retrograde	-2182 Mar 13 j 07:38	23°M05'19		direct	-2175 Sep 03 j 22:24	3°M13'16	
min. Earth dist.	-2182 May 30 j 23:15	21°M52'31	32.42939 AU				
opposition	-2182 Jun 02 j 13:25	21°M48'42	0°51'25	conjunction	-2175 Dec 13 j 15:28	5°M16'30	-3°-13'-5
direct	-2182 Aug 21 j 19:17	20°M32'47		minimum elong	-2175 Dec 13 j 15:22	5°M16'29	3°13'09
				max. Earth dist.	-2175 Dec 16 j 13:21	5°M22'07	36.25364 AU



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 15

Attention, astronomical year style is used: The year -2174 in astronomical counting style is the year 2175 BCE in historical counting style.

retrograde	-2174 Mar 27 j 09:00	7°♂22'49		direct	-2166 Sep 19 j 07:19	17°♂52'03	
min. Earth dist.	-2174 Jun 14 j 13:21	6°♂12'52	34.38230 AU				
opposition	-2174 Jun 17 j 12:15	6°♂08'42	-3°-40'-24	conjunction	-2166 Dec 28 j 03:40	19°♂46'48	-7°-19'-42
direct	-2174 Sep 05 j 22:24	4°♂55'43		minimum elong	-2166 Dec 28 j 03:28	19°♂46'47	7°19'45
				max. Earth dist.	-2166 Dec 31 j 07:20	19°♂52'30	38.55777 AU
conjunction	-2174 Dec 15 j 13:22	6°♂57'53	-3°-42'-57	retrograde	-2165 Apr 11 j 00:45	21°♂45'21	
minimum elong	-2174 Dec 15 j 13:15	6°♂57'52	3°43'01	min. Earth dist.	-2165 Jun 29 j 12:25	20°♂38'22	36.70242 AU
max. Earth dist.	-2174 Dec 18 j 12:35	7°♂03'34	36.50508 AU	opposition	-2165 Jul 02 j 17:22	20°♂34'03	-7°-56'-43
retrograde	-2173 Mar 29 j 07:31	9°♂03'14		direct	-2165 Sep 21 j 02:54	19°♂24'13	
min. Earth dist.	-2173 Jun 16 j 11:39	7°♂53'39	34.63605 AU				
opposition	-2173 Jun 19 j 12:03	7°♂49'25	-4°-11'-36	conjunction	-2165 Dec 29 j 21:45	21°♂18'06	-7°-44'00
direct	-2173 Sep 07 j 22:34	6°♂36'47		minimum elong	-2165 Dec 29 j 21:33	21°♂18'05	7°44'05
				max. Earth dist.	-2164 Jan 02 j 02:38	21°♂23'51	38.81089 AU
conjunction	-2173 Dec 17 j 10:36	8°♂37'55	-4°-12'-14	retrograde	-2164 Apr 11 j 15:37	23°♂15'50	
minimum elong	-2173 Dec 17 j 10:28	8°♂37'55	4°12'18	min. Earth dist.	-2164 Jun 30 j 08:31	22°♂09'04	36.95674 AU
max. Earth dist.	-2173 Dec 20 j 10:23	8°♂43'36	36.75879 AU	opposition	-2164 Jul 03 j 12:49	22°♂04'47	-8°-21'-49
retrograde	-2172 Mar 30 j 06:17	10°♂42'20		direct	-2164 Sep 22 j 01:39	20°♂55'13	
min. Earth dist.	-2172 Jun 17 j 09:49	9°♂33'07	34.89227 AU				
opposition	-2172 Jun 20 j 11:31	9°♂28'50	-4°-42'-7	conjunction	-2164 Dec 30 j 15:06	22°♂48'16	-8°-7'-41
direct	-2172 Sep 08 j 20:55	8°♂16'34		minimum elong	-2164 Dec 30 j 14:54	22°♂48'15	8°07'44
				max. Earth dist.	-2163 Jan 02 j 19:14	22°♂53'56	39.06265 AU
conjunction	-2172 Dec 18 j 07:23	10°♂16'43	-4°-40'-53	retrograde	-2163 Apr 13 j 08:14	24°♂45'12	
minimum elong	-2172 Dec 18 j 07:14	10°♂16'42	4°40'57	min. Earth dist.	-2163 Jul 02 j 02:12	23°♂38'44	37.21008 AU
max. Earth dist.	-2172 Dec 21 j 09:08	10°♂22'31	37.01463 AU	opposition	-2163 Jul 05 j 07:48	23°♂34'24	-8°-46'-15
retrograde	-2171 Apr 01 j 01:04	12°♂20'14		direct	-2163 Sep 23 j 21:45	22°♂25'06	
min. Earth dist.	-2171 Jun 19 j 08:19	11°♂11'21	35.15031 AU				
opposition	-2171 Jun 22 j 10:26	11°♂07'04	-5°-11'-58	conjunction	-2162 Jan 01 j 08:14	24°♂17'18	-8°-30'-44
direct	-2171 Sep 10 j 21:58	9°♂55'10		minimum elong	-2162 Jan 01 j 08:01	24°♂17'17	8°30'49
				max. Earth dist.	-2162 Jan 04 j 13:32	24°♂23'01	39.31355 AU
conjunction	-2171 Dec 20 j 03:41	11°♂54'21	-5°-8'-55	retrograde	-2162 Apr 15 j 00:13	26°♂13'29	
minimum elong	-2171 Dec 20 j 03:32	11°♂54'21	5°08'59	min. Earth dist.	-2162 Jul 03 j 21:31	25°♂07'11	37.46292 AU
max. Earth dist.	-2171 Dec 23 j 05:18	12°♂00'06	37.27202 AU	opposition	-2162 Jul 07 j 02:21	25°♂02'55	-9°-10'00
retrograde	-2170 Apr 02 j 21:17	13°♂57'00		direct	-2162 Sep 25 j 17:07	23°♂53'52	
min. Earth dist.	-2170 Jun 21 j 05:00	12°♂48'32	35.40984 AU				
opposition	-2170 Jun 24 j 08:47	12°♂44'10	-5°-41'-7	conjunction	-2161 Jan 03 j 01:00	25°♂45'16	-8°-53'-9
direct	-2170 Sep 12 j 20:47	11°♂32'39		minimum elong	-2161 Jan 03 j 00:48	25°♂45'15	8°53'13
				max. Earth dist.	-2161 Jan 06 j 06:28	25°♂50'58	39.56416 AU
conjunction	-2170 Dec 21 j 23:39	13°♂30'55	-5°-36'-19	retrograde	-2161 Apr 16 j 17:13	27°♂40'42	
minimum elong	-2170 Dec 21 j 23:29	13°♂30'54	5°36'23	min. Earth dist.	-2161 Jul 05 j 14:19	26°♂34'42	37.71544 AU
max. Earth dist.	-2170 Dec 25 j 03:01	13°♂36'45	37.53030 AU	opposition	-2161 Jul 08 j 20:19	26°♂30'22	-9°-33'-4
retrograde	-2169 Apr 04 j 16:22	15°♂32'44		direct	-2161 Sep 27 j 10:59	25°♂21'36	
min. Earth dist.	-2169 Jun 23 j 03:26	14°♂24'32	35.66994 AU				
opposition	-2169 Jun 26 j 06:44	14°♂20'13	-6°-9'-36	conjunction	-2160 Jan 04 j 17:16	27°♂12'14	-9°-14'-57
direct	-2169 Sep 14 j 19:14	13°♂09'04		minimum elong	-2160 Jan 04 j 17:03	27°♂12'13	9°15'01
				max. Earth dist.	-2160 Jan 07 j 22:52	27°♂17'53	39.81442 AU
conjunction	-2169 Dec 23 j 19:14	15°♂06'26	-6°-3'-6	retrograde	-2160 Apr 17 j 12:30	29°♂06'55	
minimum elong	-2169 Dec 23 j 19:04	15°♂06'25	6°03'11	min. Earth dist.	-2160 Jul 06 j 07:55	28°♂01'09	37.96784 AU
max. Earth dist.	-2169 Dec 26 j 22:30	15°♂12'13	37.78872 AU	opposition	-2160 Jul 09 j 13:59	27°♂56'51	-9°-55'-28
retrograde	-2168 Apr 05 j 12:32	17°♂07'25		direct	-2160 Sep 28 j 01:46	26°♂48'21	
min. Earth dist.	-2168 Jun 23 j 23:18	15°♂59'37	35.92982 AU				
opposition	-2168 Jun 27 j 03:56	15°♂55'14	-6°-37'-23	conjunction	-2159 Jan 05 j 09:21	28°♂38'14	-9°-36'-7
direct	-2168 Sep 15 j 16:04	14°♂44'27		minimum elong	-2159 Jan 05 j 09:09	28°♂38'14	9°36'10
				max. Earth dist.	-2159 Jan 08 j 16:01	28°♂43'56	40.06455 AU
conjunction	-2168 Dec 24 j 14:25	16°♂40'55	-6°-29'-15		-2159 Feb 26 j 21:33	0°♂	
minimum elong	-2168 Dec 24 j 14:14	16°♂40'55	6°29'19	retrograde	-2159 Apr 19 j 03:59	0°♂32'13	
max. Earth dist.	-2168 Dec 27 j 18:10	16°♂46'43	38.04642 AU		-2159 Jun 11 j 04:00	30°♂	
retrograde	-2167 Apr 07 j 10:00	18°♂41'06		min. Earth dist.	-2159 Jul 08 j 01:09	29°♂26'42	38.21979 AU
min. Earth dist.	-2167 Jun 25 j 20:44	17°♂33'34	36.18892 AU	opposition	-2159 Jul 11 j 07:14	29°♂22'25	-10°-17'-13
opposition	-2167 Jun 29 j 01:01	17°♂29'14	-7°-4'-30	direct	-2159 Sep 29 j 19:30	28°♂14'12	
direct	-2167 Sep 17 j 11:07	16°♂18'48			-2158 Jan 05 j 02:13	0°♂	
conjunction	-2167 Dec 26 j 09:15	18°♂14'24	-6°-54'-47	conjunction	-2158 Jan 07 j 00:53	0°♂03'22	-9°-56'-40
minimum elong	-2167 Dec 26 j 09:04	18°♂14'23	6°54'52	minimum elong	-2158 Jan 07 j 00:40	0°♂03'21	9°56'44
max. Earth dist.	-2167 Dec 29 j 13:35	18°♂20'11	38.30298 AU	max. Earth dist.	-2158 Jan 10 j 06:53	0°♂08'59	40.31409 AU
retrograde	-2166 Apr 09 j 05:41	20°♂13'46		retrograde	-2158 Apr 20 j 19:57	1°♂56'40	
min. Earth dist.	-2166 Jun 27 j 16:57	19°♂06'31	36.44646 AU	min. Earth dist.	-2158 Jul 09 j 17:17	0°♂51'26	38.47107 AU
opposition	-2166 Jun 30 j 21:28	19°♂02'12	-7°-30'-56	opposition	-2158 Jul 13 j 00:11	0°♂47'08	-10°-38'-17



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 16

Attention, astronomical year style is used: The year -2158 in astronomical counting style is the year 2159 BCE in historical counting style.

	-2158 Aug 21 j 13:44	30°R <sup>2</sup>		conjunction	-2149 Jan 19 j 09:17	12° <sup>3</sup> 13'36	-12°-35'-47
direct	-2158 Oct 01 j 12:24	29° <sup>2</sup> 39'12		minimum elong	-2149 Jan 19 j 09:07	12° <sup>3</sup> 13'35	12°35'51
	-2158 Nov 10 j 09:40	0° <sup>3</sup>		max. Earth dist.	-2149 Jan 22 j 14:00	12° <sup>3</sup> 18'52	42.45584 AU
				retrograde	-2149 May 02 j 23:58	14° <sup>3</sup> 01'18	
conjunction	-2157 Jan 08 j 16:21	1° <sup>3</sup> 27'40	-10°-16'-36	min. Earth dist.	-2149 Jul 22 j 12:10	12° <sup>3</sup> 57'50	40.62052 AU
minimum elong	-2157 Jan 08 j 16:09	1° <sup>3</sup> 27'39	10°16'40	opposition	-2149 Jul 25 j 15:59	12° <sup>3</sup> 53'49	-13°-20'-45
max. Earth dist.	-2157 Jan 11 j 23:33	1° <sup>3</sup> 33'20	40.56256 AU	direct	-2149 Oct 14 j 09:24	11° <sup>3</sup> 48'00	
retrograde	-2157 Apr 22 j 09:01	3° <sup>3</sup> 20'18					
min. Earth dist.	-2157 Jul 11 j 10:46	2° <sup>3</sup> 15'16	38.72093 AU	conjunction	-2148 Jan 20 j 21:58	13° <sup>3</sup> 30'47	-12°-50'-43
opposition	-2157 Jul 14 j 16:36	2° <sup>3</sup> 11'02	-10°-58'-44	minimum elong	-2148 Jan 20 j 21:47	13° <sup>3</sup> 30'47	12°50'46
direct	-2157 Oct 03 j 07:13	1° <sup>3</sup> 03'23		max. Earth dist.	-2148 Jan 24 j 02:08	13° <sup>3</sup> 35'58	42.68148 AU
				retrograde	-2148 May 03 j 15:01	15° <sup>3</sup> 17'57	
conjunction	-2156 Jan 10 j 07:29	2° <sup>3</sup> 51'10	-10°-35'-57	min. Earth dist.	-2148 Jul 23 j 02:01	14° <sup>3</sup> 14'38	40.84757 AU
minimum elong	-2156 Jan 10 j 07:15	2° <sup>3</sup> 51'09	10°36'01	opposition	-2148 Jul 26 j 05:26	14° <sup>3</sup> 10'40	-13°-35'-54
max. Earth dist.	-2156 Jan 13 j 13:48	2° <sup>3</sup> 56'45	40.80938 AU	direct	-2148 Oct 14 j 20:43	13° <sup>3</sup> 05'04	
retrograde	-2156 Apr 22 j 23:40	4° <sup>3</sup> 43'10					
min. Earth dist.	-2156 Jul 12 j 02:04	3° <sup>3</sup> 38'25	38.96879 AU	conjunction	-2147 Jan 21 j 10:26	14° <sup>3</sup> 47'19	-13°-5'-6
opposition	-2156 Jul 15 j 08:41	3° <sup>3</sup> 34'09	-11°-18'-32	minimum elong	-2147 Jan 21 j 10:16	14° <sup>3</sup> 47'18	13°05'10
direct	-2156 Oct 03 j 23:50	2° <sup>3</sup> 26'47		max. Earth dist.	-2147 Jan 24 j 15:32	14° <sup>3</sup> 52'32	42.90580 AU
				retrograde	-2147 May 05 j 03:48	16° <sup>3</sup> 33'56	
conjunction	-2155 Jan 10 j 22:10	4° <sup>3</sup> 13'55	-10°-54'-44	min. Earth dist.	-2147 Jul 24 j 15:34	15° <sup>3</sup> 30'48	41.07303 AU
minimum elong	-2155 Jan 10 j 21:58	4° <sup>3</sup> 13'54	10°54'48	opposition	-2147 Jul 27 j 18:33	15° <sup>3</sup> 26'52	-13°-50'-28
max. Earth dist.	-2155 Jan 14 j 04:36	4° <sup>3</sup> 19'28	41.05375 AU	direct	-2147 Oct 16 j 09:14	14° <sup>3</sup> 21'30	
retrograde	-2155 Apr 24 j 15:13	6° <sup>3</sup> 05'17					
min. Earth dist.	-2155 Jul 13 j 19:13	5° <sup>3</sup> 00'43	39.21402 AU	conjunction	-2146 Jan 22 j 22:39	16° <sup>3</sup> 03'14	-13°-18'-56
opposition	-2155 Jul 17 j 00:40	4° <sup>3</sup> 56'32	-11°-37'-45	minimum elong	-2146 Jan 22 j 22:28	16° <sup>3</sup> 03'13	13°18'59
direct	-2155 Oct 05 j 15:16	3° <sup>3</sup> 49'25		max. Earth dist.	-2146 Jan 26 j 02:33	16° <sup>3</sup> 08'21	43.12859 AU
				retrograde	-2146 May 06 j 17:26	17° <sup>3</sup> 49'20	
conjunction	-2154 Jan 12 j 12:54	5° <sup>3</sup> 35'54	-11°-12'-56	min. Earth dist.	-2146 Jul 26 j 03:45	16° <sup>3</sup> 46'27	41.29689 AU
minimum elong	-2154 Jan 12 j 12:41	5° <sup>3</sup> 35'53	11°13'00	opposition	-2146 Jul 29 j 07:16	16° <sup>3</sup> 42'30	-14°-4'-29
max. Earth dist.	-2154 Jan 15 j 19:17	5° <sup>3</sup> 41'25	41.29526 AU	direct	-2146 Oct 17 j 20:39	15° <sup>3</sup> 37'21	
retrograde	-2154 Apr 26 j 06:36	7° <sup>3</sup> 26'38					
min. Earth dist.	-2154 Jul 15 j 10:47	6° <sup>3</sup> 22'17	39.45595 AU	conjunction	-2145 Jan 24 j 10:46	17° <sup>3</sup> 18'35	-13°-32'-16
opposition	-2154 Jul 18 j 16:04	6° <sup>3</sup> 18'07	-11°-56'-22	minimum elong	-2145 Jan 24 j 10:36	17° <sup>3</sup> 18'35	13°32'20
direct	-2154 Oct 07 j 06:16	5° <sup>3</sup> 11'15		max. Earth dist.	-2145 Jan 27 j 15:18	17° <sup>3</sup> 23'43	43.34949 AU
				retrograde	-2145 May 08 j 02:14	19° <sup>3</sup> 04'12	
conjunction	-2153 Jan 14 j 03:12	6° <sup>3</sup> 57'05	-11°-30'-36	min. Earth dist.	-2145 Jul 27 j 17:51	18° <sup>3</sup> 01'28	41.51853 AU
minimum elong	-2153 Jan 14 j 03:00	6° <sup>3</sup> 57'05	11°30'40	opposition	-2145 Jul 30 j 19:52	17° <sup>3</sup> 57'36	-14°-17'-57
max. Earth dist.	-2153 Jan 17 j 08:18	7° <sup>3</sup> 02'29	41.53331 AU	direct	-2145 Oct 19 j 11:53	16° <sup>3</sup> 52'41	
retrograde	-2153 Apr 27 j 23:11	8° <sup>3</sup> 47'12					
min. Earth dist.	-2153 Jul 17 j 02:14	7° <sup>3</sup> 43'02	39.69447 AU	conjunction	-2144 Jan 25 j 22:35	18° <sup>3</sup> 33'25	-13°-45'-5
opposition	-2153 Jul 20 j 07:16	7° <sup>3</sup> 38'54	-12°-14'-24	minimum elong	-2144 Jan 25 j 22:26	18° <sup>3</sup> 33'25	13°45'09
direct	-2153 Oct 08 j 19:27	6° <sup>3</sup> 32'15		max. Earth dist.	-2144 Jan 29 j 02:16	18° <sup>3</sup> 38'29	43.56802 AU
				retrograde	-2144 May 08 j 12:49	20° <sup>3</sup> 18'33	
conjunction	-2152 Jan 15 j 17:15	8° <sup>3</sup> 17'28	-11°-47'-43	min. Earth dist.	-2144 Jul 28 j 05:40	19° <sup>3</sup> 16'03	41.73739 AU
minimum elong	-2152 Jan 15 j 17:02	8° <sup>3</sup> 17'27	11°47'47	opposition	-2144 Jul 31 j 08:04	19° <sup>3</sup> 12'11	-14°-30'-54
max. Earth dist.	-2152 Jan 18 j 22:54	8° <sup>3</sup> 22'52	41.76792 AU	direct	-2144 Oct 20 j 01:44	18° <sup>3</sup> 07'30	
retrograde	-2152 Apr 28 j 11:04	10° <sup>3</sup> 06'57					
min. Earth dist.	-2152 Jul 17 j 18:10	9° <sup>3</sup> 02'54	39.92953 AU	conjunction	-2143 Jan 26 j 10:15	19° <sup>3</sup> 47'45	-13°-57'-25
opposition	-2152 Jul 20 j 21:59	8° <sup>3</sup> 58'51	-12°-31'-51	minimum elong	-2143 Jan 26 j 10:05	19° <sup>3</sup> 47'45	13°57'30
direct	-2152 Oct 09 j 12:05	7° <sup>3</sup> 52'25		max. Earth dist.	-2143 Jan 29 j 13:19	19° <sup>3</sup> 52'45	43.78343 AU
				retrograde	-2143 May 10 j 02:38	21° <sup>3</sup> 32'25	
conjunction	-2151 Jan 16 j 06:52	9° <sup>3</sup> 36'59	-12°-4'-17	min. Earth dist.	-2143 Jul 29 j 19:11	20° <sup>3</sup> 30'03	41.95295 AU
minimum elong	-2151 Jan 16 j 06:41	9° <sup>3</sup> 36'59	12°04'22	opposition	-2143 Aug 01 j 20:14	20° <sup>3</sup> 26'16	-14°-43'-21
max. Earth dist.	-2151 Jan 19 j 11:16	9° <sup>3</sup> 42'17	41.99951 AU	direct	-2143 Oct 21 j 12:29	19° <sup>3</sup> 21'48	
retrograde	-2151 Apr 29 j 23:00	11° <sup>3</sup> 25'52					
min. Earth dist.	-2151 Jul 19 j 07:55	10° <sup>3</sup> 22'02	40.16192 AU	conjunction	-2142 Jan 27 j 21:52	21° <sup>3</sup> 01'35	-14°-9'-17
opposition	-2151 Jul 22 j 12:23	10° <sup>3</sup> 17'58	-12°-48'-44	minimum elong	-2142 Jan 27 j 21:44	21° <sup>3</sup> 01'34	14°09'21
direct	-2151 Oct 11 j 04:03	9° <sup>3</sup> 11'44		max. Earth dist.	-2142 Jan 31 j 00:49	21° <sup>3</sup> 06'32	43.99527 AU
				retrograde	-2142 May 11 j 14:07	22° <sup>3</sup> 45'45	
conjunction	-2150 Jan 17 j 20:08	10° <sup>3</sup> 55'41	-12°-20'-19	min. Earth dist.	-2142 Jul 31 j 07:45	21° <sup>3</sup> 43'33	42.16438 AU
minimum elong	-2150 Jan 17 j 19:56	10° <sup>3</sup> 55'41	12°20'22	opposition	-2142 Aug 03 j 08:03	21° <sup>3</sup> 39'49	-14°-55'-19
max. Earth dist.	-2150 Jan 21 j 01:07	11° <sup>3</sup> 01'00	42.22859 AU	direct	-2142 Oct 23 j 00:32	20° <sup>3</sup> 35'32	
retrograde	-2150 May 01 j 11:12	12° <sup>3</sup> 43'58					
min. Earth dist.	-2150 Jul 20 j 23:16	11° <sup>3</sup> 40'16	40.39211 AU	conjunction	-2141 Jan 29 j 09:15	22° <sup>3</sup> 14'50	-14°-20'-42
opposition	-2150 Jul 24 j 02:32	11° <sup>3</sup> 36'16	-13°-5'-2	minimum elong	-2141 Jan 29 j 09:06	22° <sup>3</sup> 14'50	14°20'46
direct	-2150 Oct 12 j 19:34	10° <sup>3</sup> 30'15		max. Earth dist.	-2141 Feb 01 j 10:16	22° <sup>3</sup> 19'39	44.20282 AU



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 17

Attention, astronomical year style is used: The year -2141 in astronomical counting style is the year 2142 BCE in historical counting style.

retrograde	-2141 May 13 j 03:24	23°♄58'31		retrograde	-2133 May 22 j 08:23	3°♁19'09	
min. Earth dist.	-2141 Aug 01 j 19:47	22°♄56'28	42.37151 AU	min. Earth dist.	-2133 Aug 11 j 13:09	2°♁18'03	43.91013 AU
opposition	-2141 Aug 04 j 19:33	22°♄52'46	-15°-6'-49	opposition	-2133 Aug 14 j 07:08	2°♁14'43	-16°-22'-2
direct	-2141 Oct 24 j 10:01	21°♄48'40		direct	-2133 Nov 03 j 02:24	1°♁11'55	
conjunction	-2140 Jan 30 j 20:27	23°♄27'30	-14°-31'-40	conjunction	-2132 Feb 09 j 05:35	2°♁47'22	-15°-43'-21
minimum elong	-2140 Jan 30 j 20:20	23°♄27'29	14°31'43	minimum elong	-2132 Feb 09 j 05:31	2°♁47'22	15°43'25
max. Earth dist.	-2140 Feb 02 j 21:43	23°♄32'17	44.40605 AU	max. Earth dist.	-2132 Feb 12 j 02:18	2°♁51'44	45.92181 AU
retrograde	-2140 May 13 j 13:04	25°♄10'41		retrograde	-2132 May 22 j 17:34	4°♁27'09	
min. Earth dist.	-2140 Aug 02 j 08:52	24°♄08'41	42.57427 AU	min. Earth dist.	-2132 Aug 11 j 22:43	3°♁26'15	44.08991 AU
opposition	-2140 Aug 05 j 06:56	24°♄05'05	-15°-17'-51	opposition	-2132 Aug 14 j 16:33	3°♁22'56	-16°-29'-24
direct	-2140 Oct 24 j 22:42	23°♄01'09		direct	-2132 Nov 03 j 12:31	2°♁20'19	
conjunction	-2139 Jan 31 j 07:11	24°♄39'29	-14°-42'-11	conjunction	-2131 Feb 09 j 14:50	3°♁55'26	-15°-50'-23
minimum elong	-2139 Jan 31 j 07:03	24°♄39'29	14°42'15	minimum elong	-2131 Feb 09 j 14:45	3°♁55'25	15°50'25
max. Earth dist.	-2139 Feb 03 j 07:02	24°♄44'11	44.60529 AU	max. Earth dist.	-2131 Feb 12 j 09:57	3°♁59'40	46.09854 AU
retrograde	-2139 May 14 j 21:53	26°♄22'12		retrograde	-2131 May 24 j 06:05	5°♁34'52	
min. Earth dist.	-2139 Aug 03 j 19:34	25°♄20'21	42.77325 AU	min. Earth dist.	-2131 Aug 13 j 09:19	4°♁34'04	44.26582 AU
opposition	-2139 Aug 06 j 17:59	25°♄16'45	-15°-28'-25	opposition	-2131 Aug 16 j 01:59	4°♁30'50	-16°-36'-22
direct	-2139 Oct 26 j 10:58	24°♄12'57		direct	-2131 Nov 04 j 19:23	3°♁28'24	
conjunction	-2138 Feb 01 j 17:49	25°♄50'49	-14°-52'-16	conjunction	-2130 Feb 11 j 00:21	5°♁03'11	-15°-57'-2
minimum elong	-2138 Feb 01 j 17:42	25°♄50'49	14°52'19	minimum elong	-2130 Feb 11 j 00:17	5°♁03'11	15°57'05
max. Earth dist.	-2138 Feb 04 j 17:15	25°♄55'28	44.80097 AU	max. Earth dist.	-2130 Feb 13 j 19:31	5°♁07'24	46.27105 AU
retrograde	-2138 May 16 j 07:17	27°♄33'03		retrograde	-2130 May 25 j 16:10	6°♁42'16	
min. Earth dist.	-2138 Aug 05 j 07:54	26°♄31'17	42.96904 AU	min. Earth dist.	-2130 Aug 14 j 20:05	5°♁41'34	44.43701 AU
opposition	-2138 Aug 08 j 04:45	26°♄27'45	-15°-38'-31	opposition	-2130 Aug 17 j 11:04	5°♁38'25	-16°-42'-56
direct	-2138 Oct 27 j 23:32	25°♄24'06		direct	-2130 Nov 06 j 03:36	4°♁36'08	
conjunction	-2137 Feb 03 j 04:20	27°♄01'31	-15°-1'-53	conjunction	-2129 Feb 12 j 09:38	6°♁10'36	-16°-3'-19
minimum elong	-2137 Feb 03 j 04:13	27°♄01'30	15°01'57	minimum elong	-2129 Feb 12 j 09:35	6°♁10'35	16°03'21
max. Earth dist.	-2137 Feb 06 j 03:42	27°♄06'08	44.99384 AU	max. Earth dist.	-2129 Feb 15 j 02:34	6°♁14'40	46.43874 AU
retrograde	-2137 May 17 j 17:50	28°♄43'17		retrograde	-2129 May 27 j 01:49	7°♁49'19	
min. Earth dist.	-2137 Aug 06 j 18:29	27°♄41'39	43.16202 AU	min. Earth dist.	-2129 Aug 16 j 05:20	6°♁48'45	44.60321 AU
opposition	-2137 Aug 09 j 15:12	27°♄38'08	-15°-48'-9	opposition	-2129 Aug 18 j 20:04	6°♁45'37	-16°-49'-9
direct	-2137 Oct 29 j 10:17	26°♄34'38		direct	-2129 Nov 07 j 11:38	5°♁43'30	
conjunction	-2136 Feb 04 j 14:22	28°♄11'37	-15°-11'-4	conjunction	-2128 Feb 13 j 18:38	7°♁17'37	-16°-9'-15
minimum elong	-2136 Feb 04 j 14:17	28°♄11'36	15°11'08	minimum elong	-2128 Feb 13 j 18:35	7°♁17'36	16°09'19
max. Earth dist.	-2136 Feb 07 j 12:29	28°♄16'07	45.18413 AU	max. Earth dist.	-2128 Feb 16 j 10:58	7°♁21'37	46.60132 AU
retrograde	-2136 May 18 j 06:11	29°♄52'57		retrograde	-2128 May 27 j 07:11	8°♁55'58	
min. Earth dist.	-2136 Aug 07 j 05:04	28°♄51'26	43.35270 AU	min. Earth dist.	-2128 Aug 16 j 16:26	7°♁55'26	44.76434 AU
opposition	-2136 Aug 10 j 01:32	28°♄47'58	-15°-57'-19	opposition	-2128 Aug 19 j 04:59	7°♁52'25	-16°-54'-59
direct	-2136 Oct 29 j 18:12	27°♄44'37		direct	-2128 Nov 07 j 23:53	6°♁50'25	
conjunction	-2135 Feb 05 j 00:27	29°♄21'11	-15°-19'-47	conjunction	-2127 Feb 14 j 03:37	8°♁24'11	-16°-14'-49
minimum elong	-2135 Feb 05 j 00:20	29°♄21'11	15°19'50	minimum elong	-2127 Feb 14 j 03:35	8°♁24'11	16°14'52
max. Earth dist.	-2135 Feb 07 j 23:08	29°♄25'43	45.37224 AU	max. Earth dist.	-2127 Feb 16 j 18:55	8°♁28'07	46.75925 AU
retrograde	-2135 Mar 02 j 22:18	0°♁		retrograde	-2127 May 28 j 14:11	10°♁02'11	
min. Earth dist.	-2135 May 19 j 15:00	1°♁02'06		min. Earth dist.	-2127 Aug 18 j 01:12	9°♁01'45	44.92090 AU
opposition	-2135 Aug 08 j 16:19	0°♁00'42	43.54104 AU	opposition	-2127 Aug 20 j 13:30	8°♁58'45	-17°00'-28
direct	-2135 Aug 09 j 06:11	30°♁♄		direct	-2127 Nov 09 j 10:46	7°♁56'52	
conjunction	-2135 Aug 11 j 11:38	29°♄57'17	-16°-6'00	conjunction	-2126 Feb 15 j 12:15	9°♁30'17	-16°-20'-2
minimum elong	-2135 Oct 31 j 05:06	28°♄54'07		minimum elong	-2126 Feb 15 j 12:11	9°♁30'17	16°20'06
max. Earth dist.	-2134 Jan 17 j 07:46	0°♁		max. Earth dist.	-2126 Feb 18 j 02:02	9°♁34'07	46.91284 AU
retrograde	-2134 Feb 06 j 10:15	0°♁30'18	-15°-28'-4	retrograde	-2126 May 30 j 00:46	11°♁07'55	
minimum elong	-2134 Feb 06 j 10:10	0°♁30'17	15°28'08	min. Earth dist.	-2126 Aug 19 j 11:00	10°♁07'32	45.07353 AU
max. Earth dist.	-2134 Feb 09 j 07:36	0°♁34'43	45.55815 AU	opposition	-2126 Aug 21 j 21:58	10°♁04'36	-17°-5'-34
retrograde	-2134 May 20 j 23:39	2°♁10'48		direct	-2126 Nov 10 j 17:58	9°♁02'50	
min. Earth dist.	-2134 Aug 10 j 01:49	1°♁09'36	43.72699 AU	conjunction	-2125 Feb 16 j 20:54	10°♁35'54	-16°-24'-53
opposition	-2134 Aug 12 j 21:29	1°♁06'11	-16°-14'-14	minimum elong	-2125 Feb 16 j 20:53	10°♁35'54	16°24'56
direct	-2134 Nov 01 j 15:37	0°♁03'12		max. Earth dist.	-2125 Feb 19 j 10:48	10°♁39'43	47.06280 AU
conjunction	-2133 Feb 07 j 19:58	1°♁39'00	-15°-35'-55	retrograde	-2125 May 31 j 09:03	12°♁13'11	
minimum elong	-2133 Feb 07 j 19:52	1°♁39'00	15°35'58	min. Earth dist.	-2125 Aug 20 j 20:02	11°♁12'52	45.22259 AU
max. Earth dist.	-2133 Feb 10 j 17:10	1°♁43'24	45.74142 AU	opposition	-2125 Aug 23 j 06:01	11°♁10'00	-17°-10'-17



Attention, astronomical year style is used: The year -2125 in astronomical counting style is the year 2126 BCE in historical counting style.

direct	-2125 Nov 12 j 02:24	10°08'19		min. Earth dist.	-2117 Aug 29 j 15:12	19°42'52	46.30016 AU
				opposition	-2117 Aug 31 j 18:06	19°40'22	-17°-34'-43
conjunction	-2124 Feb 18 j 05:12	11°41'05	-16°-29'-22	direct	-2117 Nov 20 j 16:27	18°39'38	
minimum elong	-2124 Feb 18 j 05:10	11°41'05	16°29'25				
max. Earth dist.	-2124 Feb 20 j 17:19	11°44'46	47.20964 AU	conjunction	-2116 Feb 26 j 20:04	20°10'16	-16°-52'-29
retrograde	-2124 May 31 j 18:19	13°18'00		minimum elong	-2116 Feb 26 j 20:06	20°10'16	16°52'31
min. Earth dist.	-2124 Aug 21 j 04:05	12°17'48	45.36879 AU	max. Earth dist.	-2116 Feb 29 j 00:29	20°13'25	48.26799 AU
opposition	-2124 Aug 23 j 14:03	12°14'56	-17°-14'-36	retrograde	-2116 Jun 09 j 04:16	21°44'53	
direct	-2124 Nov 12 j 08:29	11°13'22		min. Earth dist.	-2116 Aug 30 j 00:09	20°45'14	46.41533 AU
				opposition	-2116 Sep 01 j 01:09	20°42'51	-17°-36'-18
conjunction	-2123 Feb 18 j 13:18	12°45'50	-16°-33'-28	direct	-2116 Nov 21 j 00:03	19°42'12	
minimum elong	-2123 Feb 18 j 13:18	12°45'50	16°33'31				
max. Earth dist.	-2123 Feb 21 j 01:36	12°49'31	47.35366 AU	conjunction	-2115 Feb 27 j 03:30	21°12'34	-16°-53'-58
retrograde	-2123 Jun 02 j 00:56	14°22'26		minimum elong	-2115 Feb 27 j 03:32	21°12'35	16°54'01
min. Earth dist.	-2123 Aug 22 j 13:44	13°22'15	45.51216 AU	max. Earth dist.	-2115 Mar 01 j 07:32	21°15'41	48.38048 AU
opposition	-2123 Aug 24 j 22:01	13°19'29	-17°-18'-33	retrograde	-2115 Jun 10 j 10:56	22°46'55	
direct	-2123 Nov 13 j 17:17	12°18'02		min. Earth dist.	-2115 Aug 31 j 07:55	21°47'19	46.52564 AU
				opposition	-2115 Sep 02 j 07:54	21°44'59	-17°-37'-34
conjunction	-2122 Feb 19 j 21:28	13°50'11	-16°-37'-12	direct	-2115 Nov 22 j 07:48	20°44'25	
minimum elong	-2122 Feb 19 j 21:27	13°50'11	16°37'15				
max. Earth dist.	-2122 Feb 22 j 08:50	13°53'49	47.49509 AU	conjunction	-2114 Feb 28 j 10:46	22°14'32	-16°-55'-8
	-2122 Apr 14 j 05:03	15°		minimum elong	-2114 Feb 28 j 10:49	22°14'32	16°55'10
retrograde	-2122 Jun 03 j 06:19	15°26'29		max. Earth dist.	-2114 Mar 02 j 12:38	22°17'30	48.48849 AU
	-2122 Jul 24 j 10:10	15°R		retrograde	-2114 Jun 11 j 20:17	23°48'36	
min. Earth dist.	-2122 Aug 23 j 21:04	14°26'27	45.65274 AU	min. Earth dist.	-2114 Sep 01 j 15:08	22°49'03	46.63187 AU
opposition	-2122 Aug 26 j 05:33	14°23'40	-17°-22'-7	opposition	-2114 Sep 03 j 14:23	22°46'45	-17°-38'-32
direct	-2122 Nov 15 j 03:06	13°22'20		direct	-2114 Nov 23 j 11:54	21°46'15	
conjunction	-2121 Feb 21 j 05:24	14°54'13	-16°-40'-35	conjunction	-2113 Mar 01 j 17:59	23°16'09	-16°-56'00
minimum elong	-2121 Feb 21 j 05:24	14°54'13	16°40'38	minimum elong	-2113 Mar 01 j 18:01	23°16'09	16°56'03
max. Earth dist.	-2121 Feb 23 j 15:30	14°57'45	47.63361 AU	max. Earth dist.	-2113 Mar 03 j 19:45	23°19'07	48.59262 AU
	-2121 Feb 25 j 04:20	15°		retrograde	-2113 Jun 13 j 02:39	24°49'57	
retrograde	-2121 Jun 04 j 14:48	16°30'13		min. Earth dist.	-2113 Sep 02 j 23:27	23°50'24	46.73442 AU
min. Earth dist.	-2121 Aug 25 j 06:10	15°30'15	45.79036 AU	opposition	-2113 Sep 04 j 20:55	23°48'12	-17°-39'-10
opposition	-2121 Aug 27 j 13:13	15°27'33	-17°-25'-19	direct	-2113 Nov 24 j 18:38	22°47'47	
	-2121 Sep 20 j 16:56	15°R					
direct	-2121 Nov 16 j 11:10	14°26'21		conjunction	-2112 Mar 02 j 00:53	24°17'27	-16°-56'-32
	-2120 Jan 10 j 14:06	15°		minimum elong	-2112 Mar 02 j 00:57	24°17'28	16°56'35
				max. Earth dist.	-2112 Mar 04 j 01:28	24°20'20	48.69354 AU
conjunction	-2120 Feb 22 j 13:14	15°57'57	-16°-43'-36	retrograde	-2112 Jun 13 j 07:05	25°51'01	
minimum elong	-2120 Feb 22 j 13:13	15°57'57	16°43'39	min. Earth dist.	-2112 Sep 03 j 05:29	24°51'34	46.83387 AU
max. Earth dist.	-2120 Feb 24 j 23:29	16°01'30	47.76903 AU	opposition	-2112 Sep 05 j 03:13	24°49'21	-17°-39'-28
retrograde	-2120 Jun 04 j 23:39	17°33'41		direct	-2112 Nov 25 j 02:13	23°49'01	
min. Earth dist.	-2120 Aug 25 j 14:33	16°33'48	45.92441 AU				
opposition	-2120 Aug 27 j 20:39	16°31'09	-17°-28'-9	conjunction	-2111 Mar 03 j 07:45	25°18'29	-16°-56'-46
direct	-2120 Nov 16 j 17:59	15°30'05		minimum elong	-2111 Mar 03 j 07:48	25°18'29	16°56'48
				max. Earth dist.	-2111 Mar 05 j 07:10	25°21'17	48.79149 AU
conjunction	-2119 Feb 22 j 20:59	17°01'26	-16°-46'-17	retrograde	-2111 Jun 14 j 12:46	26°51'49	
minimum elong	-2119 Feb 22 j 21:00	17°01'26	16°46'21	min. Earth dist.	-2111 Sep 04 j 13:24	25°52'24	46.93055 AU
max. Earth dist.	-2119 Feb 25 j 05:12	17°04'50	47.90076 AU	opposition	-2111 Sep 06 j 09:30	25°50'16	-17°-39'-27
retrograde	-2119 Jun 06 j 09:50	18°36'53		direct	-2111 Nov 26 j 10:25	24°50'01	
min. Earth dist.	-2119 Aug 26 j 22:24	17°37'07	46.05456 AU				
opposition	-2119 Aug 29 j 03:55	17°34'30	-17°-30'-39	conjunction	-2110 Mar 04 j 14:42	26°19'17	-16°-56'-40
direct	-2119 Nov 17 j 22:49	16°33'33		minimum elong	-2110 Mar 04 j 14:47	26°19'18	16°56'43
				max. Earth dist.	-2110 Mar 06 j 14:11	26°22'06	48.88682 AU
conjunction	-2118 Feb 24 j 04:48	18°04'40	-16°-48'-39	retrograde	-2110 Jun 15 j 20:00	27°52'25	
minimum elong	-2118 Feb 24 j 04:49	18°04'40	16°48'42	min. Earth dist.	-2110 Sep 05 j 20:01	26°53'05	47.02434 AU
max. Earth dist.	-2118 Feb 26 j 12:32	18°08'02	48.02814 AU	opposition	-2110 Sep 07 j 15:35	26°50'59	-17°-39'-6
retrograde	-2118 Jun 07 j 15:38	19°39'50		direct	-2110 Nov 27 j 17:00	25°50'50	
min. Earth dist.	-2118 Aug 28 j 07:52	18°40'05	46.17993 AU				
opposition	-2118 Aug 30 j 11:12	18°37'35	-17°-32'-51	conjunction	-2109 Mar 05 j 21:22	27°19'56	-16°-56'-16
direct	-2118 Nov 19 j 07:21	17°36'45		minimum elong	-2109 Mar 05 j 21:26	27°19'56	16°56'18
				max. Earth dist.	-2109 Mar 07 j 18:52	27°22'37	48.97927 AU
conjunction	-2117 Feb 25 j 12:34	19°07'37	-16°-50'-43	retrograde	-2109 Jun 17 j 05:53	28°52'51	
minimum elong	-2117 Feb 25 j 12:36	19°07'37	16°50'46	min. Earth dist.	-2109 Sep 07 j 02:34	27°53'37	47.11522 AU
max. Earth dist.	-2117 Feb 27 j 18:43	19°10'53	48.15066 AU	opposition	-2109 Sep 08 j 21:34	27°51'32	-17°-38'-25
retrograde	-2117 Jun 08 j 20:38	20°42'30		direct	-2109 Nov 28 j 19:40	26°51'29	



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 19

Attention, astronomical year style is used: The year -2108 in astronomical counting style is the year 2109 BCE in historical counting style.

conjunction	-2108 Mar 06 j 04:05	28° <del>22</del> 20'26	-16°-55'-33	direct	-2101 Dec 06 j 21:17	4° <del>48</del> 50'37	
minimum elong	-2108 Mar 06 j 04:11	28° <del>22</del> 20'26	16°55'36				
max. Earth dist.	-2108 Mar 08 j 01:32	28° <del>22</del> 23'06	49.06862 AU	conjunction	-2100 Mar 14 j 07:56	6° <del>48</del> 18'18	-16°-40'-8
retrograde	-2108 Jun 17 j 12:02	29° <del>22</del> 53'10		minimum elong	-2100 Mar 14 j 08:02	6° <del>48</del> 18'18	16°40'11
min. Earth dist.	-2108 Sep 07 j 10:21	28° <del>22</del> 53'57	47.20266 AU	max. Earth dist.	-2100 Mar 15 j 19:13	6° <del>48</del> 20'20	49.62088 AU
opposition	-2108 Sep 09 j 03:33	28° <del>22</del> 51'58	-17°-37'-27	retrograde	-2100 Jun 25 j 07:39	7° <del>48</del> 49'30	
direct	-2108 Nov 29 j 01:26	27° <del>22</del> 52'02		min. Earth dist.	-2100 Sep 15 j 16:13	6° <del>48</del> 50'25	47.73394 AU
				opposition	-2100 Sep 17 j 00:01	6° <del>48</del> 48'54	-17°-19'-50
conjunction	-2107 Mar 07 j 10:40	29° <del>22</del> 20'49	-16°-54'-32	direct	-2100 Dec 07 j 05:02	5° <del>48</del> 49'23	
minimum elong	-2107 Mar 07 j 10:45	29° <del>22</del> 20'50	16°54'34				
max. Earth dist.	-2107 Mar 09 j 06:39	29° <del>22</del> 23'24	49.15444 AU	conjunction	-2099 Mar 15 j 13:52	7° <del>48</del> 16'55	-16°-37'-1
	-2107 Apr 05 j 04:03	0° <del>48</del>		minimum elong	-2099 Mar 15 j 14:01	7° <del>48</del> 16'56	16°37'02
retrograde	-2107 Jun 18 j 16:29	0° <del>48</del> 53'22		max. Earth dist.	-2099 Mar 16 j 23:08	7° <del>48</del> 18'51	49.67101 AU
	-2107 Sep 03 j 16:57	30° <del>48</del>		retrograde	-2099 Jun 26 j 16:01	8° <del>48</del> 47'58	
min. Earth dist.	-2107 Sep 08 j 16:28	29° <del>22</del> 54'16	47.28613 AU	min. Earth dist.	-2099 Sep 16 j 22:13	7° <del>48</del> 48'55	47.78202 AU
opposition	-2107 Sep 10 j 09:23	29° <del>22</del> 52'18	-17°-36'-10	opposition	-2099 Sep 18 j 05:13	7° <del>48</del> 47'26	-17°-16'-23
direct	-2107 Nov 30 j 08:41	28° <del>22</del> 52'27		direct	-2099 Dec 08 j 08:10	6° <del>48</del> 47'57	
	-2106 Feb 21 j 13:49	0° <del>48</del>					
conjunction	-2106 Mar 08 j 17:22	0° <del>48</del> 21'06	-16°-53'-15	conjunction	-2098 Mar 16 j 20:04	8° <del>48</del> 15'22	-16°-33'-36
minimum elong	-2106 Mar 08 j 17:28	0° <del>48</del> 21'06	16°53'18	minimum elong	-2098 Mar 16 j 20:11	8° <del>48</del> 15'23	16°33'38
max. Earth dist.	-2106 Mar 10 j 11:46	0° <del>48</del> 23'35	49.23580 AU	max. Earth dist.	-2098 Mar 18 j 05:12	8° <del>48</del> 17'17	49.71809 AU
retrograde	-2106 Jun 19 j 21:38	1° <del>48</del> 53'28		retrograde	-2098 Jun 27 j 22:10	9° <del>48</del> 46'17	
min. Earth dist.	-2106 Sep 10 j 00:31	0° <del>48</del> 54'22	47.36490 AU	min. Earth dist.	-2098 Sep 18 j 04:50	8° <del>48</del> 47'12	47.82695 AU
opposition	-2106 Sep 11 j 15:10	0° <del>48</del> 52'30	-17°-34'-38	opposition	-2098 Sep 19 j 10:15	8° <del>48</del> 45'48	-17°-12'-39
	-2106 Nov 06 j 00:48	30° <del>48</del>		direct	-2098 Dec 09 j 12:58	7° <del>48</del> 46'23	
direct	-2106 Dec 01 j 16:07	29° <del>22</del> 52'45		conjunction	-2097 Mar 18 j 02:06	9° <del>48</del> 13'42	-16°-29'-55
	-2106 Dec 27 j 00:35	0° <del>48</del>		minimum elong	-2097 Mar 18 j 02:15	9° <del>48</del> 13'43	16°29'57
conjunction	-2105 Mar 10 j 00:08	1° <del>48</del> 21'14	-16°-51'-43	max. Earth dist.	-2097 Mar 19 j 09:51	9° <del>48</del> 15'32	49.76225 AU
minimum elong	-2105 Mar 10 j 00:14	1° <del>48</del> 21'14	16°51'44	retrograde	-2097 Jun 29 j 03:18	10° <del>48</del> 44'28	
max. Earth dist.	-2105 Mar 11 j 17:47	1° <del>48</del> 23'40	49.31228 AU	min. Earth dist.	-2097 Sep 19 j 09:54	9° <del>48</del> 45'29	47.86881 AU
retrograde	-2105 Jun 21 j 02:54	2° <del>48</del> 53'26		opposition	-2097 Sep 20 j 15:15	9° <del>48</del> 44'05	-17°-8'-38
min. Earth dist.	-2105 Sep 11 j 07:09	1° <del>48</del> 54'22	47.43836 AU	direct	-2097 Dec 10 j 17:51	8° <del>48</del> 44'44	
opposition	-2105 Sep 12 j 20:53	1° <del>48</del> 52'33	-17°-32'-49	conjunction	-2096 Mar 18 j 07:54	10° <del>48</del> 11'58	-16°-25'-58
direct	-2105 Dec 02 j 23:39	0° <del>48</del> 52'51		minimum elong	-2096 Mar 18 j 08:02	10° <del>48</del> 11'59	16°25'59
				max. Earth dist.	-2096 Mar 19 j 14:23	10° <del>48</del> 13'44	49.80304 AU
conjunction	-2104 Mar 10 j 06:30	2° <del>48</del> 21'11	-16°-49'-55	retrograde	-2096 Jun 29 j 07:44	11° <del>48</del> 42'38	
minimum elong	-2104 Mar 10 j 06:36	2° <del>48</del> 21'11	16°49'58	opposition	-2096 Sep 20 j 20:23	10° <del>48</del> 42'20	-17°-4'-21
max. Earth dist.	-2104 Mar 11 j 21:40	2° <del>48</del> 23'28	49.38342 AU	min. Earth dist.	-2096 Sep 19 j 17:00	10° <del>48</del> 43'38	47.90714 AU
retrograde	-2104 Jun 21 j 11:59	3° <del>48</del> 53'11		direct	-2096 Dec 11 j 00:11	9° <del>48</del> 43'03	
min. Earth dist.	-2104 Sep 11 j 14:10	2° <del>48</del> 54'07	47.50656 AU	conjunction	-2095 Mar 19 j 14:01	11° <del>48</del> 10'14	-16°-21'-44
opposition	-2104 Sep 13 j 02:38	2° <del>48</del> 52'22	-17°-30'-46	minimum elong	-2095 Mar 19 j 14:10	11° <del>48</del> 10'14	16°21'47
direct	-2104 Dec 03 j 03:24	1° <del>48</del> 52'44		max. Earth dist.	-2095 Mar 20 j 20:03	11° <del>48</del> 11'57	49.84018 AU
conjunction	-2103 Mar 11 j 13:03	3° <del>48</del> 20'53	-16°-47'-52	retrograde	-2095 Jun 30 j 12:04	12° <del>48</del> 40'47	
minimum elong	-2103 Mar 11 j 13:10	3° <del>48</del> 20'54	16°47'54	min. Earth dist.	-2095 Sep 20 j 22:33	11° <del>48</del> 41'51	47.94132 AU
max. Earth dist.	-2103 Mar 13 j 03:45	3° <del>48</del> 23'08	49.44937 AU	opposition	-2095 Sep 22 j 01:12	11° <del>48</del> 40'35	-16°-59'-48
retrograde	-2103 Jun 22 j 19:10	4° <del>48</del> 52'41		direct	-2095 Dec 12 j 07:01	10° <del>48</del> 41'22	
min. Earth dist.	-2103 Sep 12 j 21:41	3° <del>48</del> 53'35	47.56964 AU	conjunction	-2094 Mar 20 j 20:02	12° <del>48</del> 08'29	-16°-17'-16
opposition	-2103 Sep 14 j 08:10	3° <del>48</del> 51'56	-17°-28'-26	minimum elong	-2094 Mar 20 j 20:11	12° <del>48</del> 08'29	16°17'17
direct	-2103 Dec 04 j 08:03	2° <del>48</del> 52'19		max. Earth dist.	-2094 Mar 21 j 23:35	12° <del>48</del> 10'03	49.87284 AU
conjunction	-2102 Mar 12 j 19:28	4° <del>48</del> 20'19	-16°-45'-33	retrograde	-2094 Jul 01 j 20:21	13° <del>48</del> 38'58	
minimum elong	-2102 Mar 12 j 19:34	4° <del>48</del> 20'19	16°45'37	min. Earth dist.	-2094 Sep 22 j 05:03	12° <del>48</del> 40'02	47.97076 AU
max. Earth dist.	-2102 Mar 14 j 08:21	4° <del>48</del> 22'27	49.51062 AU	opposition	-2094 Sep 23 j 06:11	12° <del>48</del> 38'50	-16°-55'00
retrograde	-2102 Jun 24 j 00:43	5° <del>48</del> 51'53		direct	-2094 Dec 13 j 10:20	11° <del>48</del> 39'40	
min. Earth dist.	-2102 Sep 14 j 03:18	4° <del>48</del> 52'50	47.62821 AU	conjunction	-2093 Mar 22 j 02:08	13° <del>48</del> 06'44	-16°-12'-34
opposition	-2102 Sep 15 j 13:32	4° <del>48</del> 51'11	-17°-25'-51	minimum elong	-2093 Mar 22 j 02:18	13° <del>48</del> 06'44	16°12'36
direct	-2102 Dec 05 j 13:11	3° <del>48</del> 51'36		max. Earth dist.	-2093 Mar 23 j 05:03	13° <del>48</del> 08'16	49.90033 AU
conjunction	-2101 Mar 14 j 01:40	5° <del>48</del> 19'26	-16°-42'-59	retrograde	-2093 Jul 03 j 03:30	14° <del>48</del> 37'07	
minimum elong	-2101 Mar 14 j 01:48	5° <del>48</del> 19'27	16°43'01	min. Earth dist.	-2093 Sep 23 j 11:57	13° <del>48</del> 38'09	47.99470 AU
max. Earth dist.	-2101 Mar 15 j 13:12	5° <del>48</del> 21'30	49.56752 AU	opposition	-2093 Sep 24 j 11:06	13° <del>48</del> 37'03	-16°-49'-58
retrograde	-2101 Jun 25 j 03:51	6° <del>48</del> 50'50		direct	-2093 Dec 14 j 13:53	12° <del>48</del> 37'56	
min. Earth dist.	-2101 Sep 15 j 10:37	5° <del>48</del> 51'43	47.68281 AU	conjunction	-2092 Mar 22 j 08:08	14° <del>48</del> 04'56	-16°-7'-38
opposition	-2101 Sep 16 j 18:52	5° <del>48</del> 50'10	-17°-22'-59				



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 20

Attention, astronomical year style is used: The year -2092 in astronomical counting style is the year 2093 BCE in historical counting style.

minimum elong	-2092 Mar 22 j 08:17	14° <del>14</del> 04'56	16°07'39	opposition	-2084 Oct 02 j 04:29	22° <del>22</del> 15'30	-15°-53'-29
max. Earth dist.	-2092 Mar 23 j 08:53	14° <del>14</del> 06'21	49.92248 AU	min. Earth dist.	-2084 Oct 01 j 15:02	22° <del>22</del> 16'09	48.01315 AU
retrograde	-2092 Jul 03 j 10:19	15° <del>15</del> 35'12		direct	-2084 Dec 22 j 13:07	21° <del>21</del> 16'26	
opposition	-2092 Sep 24 j 15:54	14° <del>14</del> 35'11	-16°-44'-42				
min. Earth dist.	-2092 Sep 23 j 17:15	14° <del>14</del> 36'16	48.01323 AU	conjunction	-2083 Mar 31 j 11:46	22° <del>22</del> 43'01	-15°-12'-14
direct	-2092 Dec 14 j 17:16	13° <del>13</del> 36'05		minimum elong	-2083 Mar 31 j 11:56	22° <del>22</del> 43'01	15°12'14
				max. Earth dist.	-2083 Apr 01 j 02:17	22° <del>22</del> 43'50	49.93311 AU
conjunction	-2091 Mar 23 j 14:01	15° <del>15</del> 03'01	-16°-2'-28	retrograde	-2083 Jul 12 j 06:12	24° <del>24</del> 12'34	
minimum elong	-2091 Mar 23 j 14:10	15° <del>15</del> 03'02	16°02'30	opposition	-2083 Oct 03 j 08:57	23° <del>23</del> 12'48	-15°-45'-54
max. Earth dist.	-2091 Mar 24 j 13:03	15° <del>15</del> 04'20	49.93916 AU	min. Earth dist.	-2083 Oct 02 j 21:08	23° <del>23</del> 13'21	47.99792 AU
retrograde	-2091 Jul 04 j 13:12	16° <del>16</del> 33'11		direct	-2083 Dec 23 j 16:54	22° <del>22</del> 13'44	
opposition	-2091 Sep 25 j 20:47	15° <del>15</del> 33'12	-16°-39'-12				
min. Earth dist.	-2091 Sep 25 j 00:34	15° <del>15</del> 34'09	48.02647 AU	conjunction	-2082 Apr 01 j 17:34	23° <del>23</del> 40'20	-15°-4'-48
direct	-2091 Dec 16 j 00:38	14° <del>14</del> 34'06		minimum elong	-2082 Apr 01 j 17:45	23° <del>23</del> 40'21	15°04'49
				max. Earth dist.	-2082 Apr 02 j 06:09	23° <del>23</del> 41'03	49.91699 AU
conjunction	-2090 Mar 24 j 20:02	16° <del>16</del> 00'57	-15°-57'-5	retrograde	-2082 Jul 13 j 14:03	25° <del>25</del> 09'51	
minimum elong	-2090 Mar 24 j 20:13	16° <del>16</del> 00'58	15°57'06	opposition	-2082 Oct 04 j 13:14	24° <del>24</del> 10'07	-15°-38'-4
max. Earth dist.	-2090 Mar 25 j 18:25	16° <del>16</del> 02'14	49.95091 AU	min. Earth dist.	-2082 Oct 04 j 02:01	24° <del>24</del> 10'39	47.97826 AU
retrograde	-2090 Jul 05 j 15:21	17° <del>17</del> 31'01		direct	-2082 Dec 24 j 19:01	23° <del>23</del> 11'04	
min. Earth dist.	-2090 Sep 26 j 05:45	16° <del>16</del> 31'59	48.03491 AU				
opposition	-2090 Sep 27 j 01:18	16° <del>16</del> 31'03	-16°-33'-28	conjunction	-2081 Apr 02 j 23:24	24° <del>24</del> 37'41	-14°-57'-9
direct	-2090 Dec 17 j 09:00	15° <del>15</del> 31'57		minimum elong	-2081 Apr 02 j 23:35	24° <del>24</del> 37'42	14°57'09
				max. Earth dist.	-2081 Apr 03 j 10:14	24° <del>24</del> 38'18	49.89598 AU
conjunction	-2089 Mar 26 j 01:47	16° <del>16</del> 58'44	-15°-51'-27	retrograde	-2081 Jul 14 j 18:29	26° <del>26</del> 07'10	
minimum elong	-2089 Mar 26 j 01:56	16° <del>16</del> 58'45	15°51'29	opposition	-2081 Oct 05 j 17:51	25° <del>25</del> 07'28	-15°-30'-1
max. Earth dist.	-2089 Mar 26 j 21:46	16° <del>16</del> 59'53	49.95822 AU	min. Earth dist.	-2081 Oct 05 j 09:03	25° <del>25</del> 07'53	47.95350 AU
retrograde	-2089 Jul 06 j 22:58	18° <del>18</del> 28'41		direct	-2081 Dec 26 j 00:12	24° <del>24</del> 08'25	
min. Earth dist.	-2089 Sep 27 j 11:38	17° <del>17</del> 29'37	48.03936 AU				
opposition	-2089 Sep 28 j 05:58	17° <del>17</del> 28'44	-16°-27'-28	conjunction	-2080 Apr 03 j 05:09	25° <del>25</del> 35'02	-14°-49'-16
direct	-2089 Dec 18 j 12:22	16° <del>16</del> 29'38		minimum elong	-2080 Apr 03 j 05:21	25° <del>25</del> 35'03	14°49'18
				max. Earth dist.	-2080 Apr 03 j 15:10	25° <del>25</del> 35'36	49.86983 AU
conjunction	-2088 Mar 26 j 07:26	17° <del>17</del> 56'21	-15°-45'-34	retrograde	-2080 Jul 14 j 20:29	27° <del>27</del> 04'30	
minimum elong	-2088 Mar 26 j 07:37	17° <del>17</del> 56'22	15°45'35	opposition	-2080 Oct 05 j 22:19	26° <del>26</del> 04'47	-15°-21'-44
max. Earth dist.	-2088 Mar 27 j 03:19	17° <del>17</del> 57'29	49.96173 AU	min. Earth dist.	-2080 Oct 05 j 14:13	26° <del>26</del> 05'11	47.92337 AU
retrograde	-2088 Jul 07 j 05:08	19° <del>19</del> 26'12		direct	-2080 Dec 26 j 08:10	25° <del>25</del> 05'43	
opposition	-2088 Sep 28 j 10:37	18° <del>18</del> 26'17	-16°-21'-13				
min. Earth dist.	-2088 Sep 27 j 17:43	18° <del>18</del> 27'05	48.04015 AU	conjunction	-2079 Apr 04 j 10:56	26° <del>26</del> 32'21	-14°-41'-11
direct	-2088 Dec 18 j 16:39	17° <del>17</del> 27'10		minimum elong	-2079 Apr 04 j 11:08	26° <del>26</del> 32'22	14°41'11
				max. Earth dist.	-2079 Apr 04 j 18:14	26° <del>26</del> 32'46	49.83840 AU
conjunction	-2087 Mar 27 j 13:08	18° <del>18</del> 53'49	-15°-39'-25	retrograde	-2079 Jul 16 j 02:45	28° <del>28</del> 01'47	
minimum elong	-2087 Mar 27 j 13:17	18° <del>18</del> 53'50	15°39'26	opposition	-2079 Oct 07 j 02:43	27° <del>27</del> 02'05	-15°-13'-13
max. Earth dist.	-2087 Mar 28 j 07:31	18° <del>18</del> 54'52	49.96203 AU	min. Earth dist.	-2079 Oct 06 j 20:16	27° <del>27</del> 02'23	47.88817 AU
retrograde	-2087 Jul 08 j 10:48	20° <del>20</del> 23'35		direct	-2079 Dec 27 j 12:29	26° <del>26</del> 02'58	
opposition	-2087 Sep 29 j 15:01	19° <del>19</del> 23'40	-16°-14'-41				
min. Earth dist.	-2087 Sep 28 j 22:15	19° <del>19</del> 24'28	48.03790 AU	conjunction	-2078 Apr 05 j 16:53	27° <del>27</del> 29'37	-14°-32'-52
direct	-2087 Dec 19 j 20:01	18° <del>18</del> 24'34		minimum elong	-2078 Apr 05 j 17:04	27° <del>27</del> 29'37	14°32'54
				max. Earth dist.	-2078 Apr 05 j 23:38	27° <del>27</del> 30'00	49.80202 AU
conjunction	-2086 Mar 28 j 18:50	19° <del>19</del> 51'11	-15°-33'-1	retrograde	-2078 Jul 17 j 08:39	28° <del>28</del> 59'01	
minimum elong	-2086 Mar 28 j 19:01	19° <del>19</del> 51'12	15°33'02	opposition	-2078 Oct 08 j 07:10	27° <del>27</del> 59'18	-15°-4'-28
max. Earth dist.	-2086 Mar 29 j 11:57	19° <del>19</del> 52'10	49.95927 AU	min. Earth dist.	-2078 Oct 08 j 02:26	27° <del>27</del> 59'32	47.84817 AU
retrograde	-2086 Jul 09 j 14:38	21° <del>21</del> 20'52		direct	-2078 Dec 28 j 16:50	27° <del>27</del> 00'10	
opposition	-2086 Sep 30 j 19:38	20° <del>20</del> 20'59	-16°-7'-53				
min. Earth dist.	-2086 Sep 30 j 04:41	20° <del>20</del> 21'41	48.03269 AU	conjunction	-2077 Apr 06 j 22:32	28° <del>28</del> 26'49	-14°-24'-19
direct	-2086 Dec 21 j 01:51	19° <del>19</del> 21'52		minimum elong	-2077 Apr 06 j 22:44	28° <del>28</del> 26'50	14°24'19
				max. Earth dist.	-2077 Apr 07 j 03:32	28° <del>28</del> 27'06	49.76128 AU
conjunction	-2085 Mar 30 j 00:29	20° <del>20</del> 48'28	-15°-26'-20	retrograde	-2077 Jul 18 j 14:56	29° <del>29</del> 56'12	
minimum elong	-2085 Mar 30 j 00:39	20° <del>20</del> 48'29	15°26'22	opposition	-2077 Oct 09 j 11:28	28° <del>28</del> 56'28	-14°-55'-29
max. Earth dist.	-2085 Mar 30 j 17:20	20° <del>20</del> 49'26	49.95371 AU	min. Earth dist.	-2077 Oct 09 j 07:03	28° <del>28</del> 56'41	47.80412 AU
retrograde	-2085 Jul 10 j 16:59	22° <del>22</del> 18'05		direct	-2077 Dec 29 j 19:51	27° <del>27</del> 57'17	
min. Earth dist.	-2085 Oct 01 j 09:17	21° <del>21</del> 18'56	48.02446 AU				
opposition	-2085 Oct 02 j 00:01	21° <del>21</del> 18'14	-16°00'-49	conjunction	-2076 Apr 07 j 04:13	29° <del>29</del> 23'59	-14°-15'-31
direct	-2085 Dec 22 j 09:10	20° <del>20</del> 19'09		minimum elong	-2076 Apr 07 j 04:24	29° <del>29</del> 24'00	14°15'32
				max. Earth dist.	-2076 Apr 07 j 07:47	29° <del>29</del> 24'11	49.71665 AU
conjunction	-2084 Mar 30 j 06:01	21° <del>21</del> 45'44	-15°-19'-25		-2076 May 04 j 09:17	0° <del>0</del> °	
minimum elong	-2084 Mar 30 j 06:13	21° <del>21</del> 45'45	15°19'27	retrograde	-2076 Jul 18 j 19:07	0° <del>0</del> °53'21	
max. Earth dist.	-2084 Mar 30 j 20:51	21° <del>21</del> 46'34	49.94513 AU		-2076 Oct 04 j 01:20	30° <del>30</del> °	
retrograde	-2084 Jul 10 j 23:27	23° <del>23</del> 15'19		opposition	-2076 Oct 09 j 15:52	29° <del>29</del> 53'37	-14°-46'-14



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 21

Attention, astronomical year style is used: The year -2076 in astronomical counting style is the year 2077 BCE in historical counting style.

min. Earth dist.	-2076 Oct 09 j 13:26	29° <del>℔</del> 53'44	47.75653 AU	min. Earth dist.	-2068 Oct 17 j 10:27	7° <del>♊</del> 34'02	47.25390 AU
direct	-2076 Dec 30 j 01:26	28° <del>℔</del> 54'24		direct	-2067 Jan 06 j 16:20	6° <del>♊</del> 34'55	
	-2075 Mar 23 j 17:30	0° <del>♊</del>					
conjunction	-2075 Apr 08 j 09:59	0° <del>♊</del> 21'08	-14°-6'-28	conjunction	-2067 Apr 16 j 09:25	8° <del>♊</del> 02'26	-12°-45'-8
minimum elong	-2075 Apr 08 j 10:11	0° <del>♊</del> 21'09	14°06'29	minimum elong	-2067 Apr 16 j 09:37	8° <del>♊</del> 02'27	12°45'09
max. Earth dist.	-2075 Apr 08 j 13:16	0° <del>♊</del> 21'20	49.66884 AU	max. Earth dist.	-2067 Apr 16 j 01:14	8° <del>♊</del> 01'59	49.16176 AU
retrograde	-2075 Jul 19 j 21:23	1° <del>♊</del> 50'31		retrograde	-2067 Jul 27 j 21:38	9° <del>♊</del> 32'18	
opposition	-2075 Oct 10 j 20:11	0° <del>♊</del> 50'46	-14°-36'-44	opposition	-2067 Oct 18 j 08:11	8° <del>♊</del> 32'31	-13°-11'-27
min. Earth dist.	-2075 Oct 10 j 17:56	0° <del>♊</del> 50'52	47.70574 AU	min. Earth dist.	-2067 Oct 18 j 15:49	8° <del>♊</del> 32'09	47.17042 AU
	-2075 Dec 03 j 04:19	30° <del>♊</del>		direct	-2066 Jan 07 j 18:59	7° <del>♊</del> 32'59	
direct	-2075 Dec 31 j 08:52	29° <del>℔</del> 51'31		conjunction	-2066 Apr 17 j 15:40	9° <del>♊</del> 00'37	-12°-33'-56
	-2074 Jan 28 j 06:54	0° <del>♊</del>		minimum elong	-2066 Apr 17 j 15:53	9° <del>♊</del> 00'38	12°33'56
conjunction	-2074 Apr 09 j 15:40	1° <del>♊</del> 18'19	-13°-57'-10	max. Earth dist.	-2066 Apr 17 j 05:39	9° <del>♊</del> 00'03	49.07718 AU
minimum elong	-2074 Apr 09 j 15:52	1° <del>♊</del> 18'20	13°57'11	retrograde	-2066 Jul 29 j 03:26	10° <del>♊</del> 30'31	
max. Earth dist.	-2074 Apr 09 j 16:49	1° <del>♊</del> 18'23	49.61797 AU	opposition	-2066 Oct 19 j 12:50	9° <del>♊</del> 30'41	-12°-59'-43
retrograde	-2074 Jul 21 j 03:29	2° <del>♊</del> 47'44		min. Earth dist.	-2066 Oct 19 j 22:46	9° <del>♊</del> 30'12	47.08197 AU
opposition	-2074 Oct 12 j 00:32	1° <del>♊</del> 47'59	-14°-26'-57	direct	-2065 Jan 09 j 00:04	8° <del>♊</del> 31'04	
min. Earth dist.	-2074 Oct 11 j 23:34	1° <del>♊</del> 48'02	47.65214 AU	conjunction	-2065 Apr 18 j 21:57	9° <del>♊</del> 58'49	-12°-22'-29
direct	-2073 Jan 01 j 12:54	0° <del>♊</del> 48'43		minimum elong	-2065 Apr 18 j 22:09	9° <del>♊</del> 58'49	12°22'30
conjunction	-2073 Apr 10 j 21:30	2° <del>♊</del> 15'35	-13°-47'-37	max. Earth dist.	-2065 Apr 18 j 11:18	9° <del>♊</del> 58'12	48.98807 AU
minimum elong	-2073 Apr 10 j 21:43	2° <del>♊</del> 15'36	13°47'38	retrograde	-2065 Jul 30 j 06:17	11° <del>♊</del> 28'46	
max. Earth dist.	-2073 Apr 10 j 22:32	2° <del>♊</del> 15'38	49.56429 AU	opposition	-2065 Oct 20 j 17:27	10° <del>♊</del> 28'51	-12°-47'-44
retrograde	-2073 Jul 22 j 09:54	3° <del>♊</del> 45'03		min. Earth dist.	-2065 Oct 21 j 03:47	10° <del>♊</del> 28'21	46.98918 AU
opposition	-2073 Oct 13 j 05:00	2° <del>♊</del> 45'18	-14°-16'-55	direct	-2064 Jan 10 j 07:34	9° <del>♊</del> 29'09	
min. Earth dist.	-2073 Oct 13 j 05:10	2° <del>♊</del> 45'18	47.59558 AU	conjunction	-2064 Apr 19 j 03:58	10° <del>♊</del> 57'00	-12°-10'-48
direct	-2072 Jan 02 j 16:48	1° <del>♊</del> 46'01		minimum elong	-2064 Apr 19 j 04:11	10° <del>♊</del> 57'01	12°10'48
conjunction	-2072 Apr 11 j 03:07	3° <del>♊</del> 12'59	-13°-37'-48	max. Earth dist.	-2064 Apr 18 j 15:03	10° <del>♊</del> 56'16	48.89487 AU
minimum elong	-2072 Apr 11 j 03:18	3° <del>♊</del> 13'00	13°37'48	retrograde	-2064 Jul 30 j 11:40	12° <del>♊</del> 27'02	
max. Earth dist.	-2072 Apr 11 j 02:36	3° <del>♊</del> 12'57	49.50778 AU	opposition	-2064 Oct 20 j 22:12	11° <del>♊</del> 27'03	-12°-35'-30
retrograde	-2072 Jul 22 j 18:34	4° <del>♊</del> 42'30		min. Earth dist.	-2064 Oct 21 j 10:05	11° <del>♊</del> 26'29	46.89268 AU
opposition	-2072 Oct 13 j 09:24	3° <del>♊</del> 42'46	-14°-6'-36	direct	-2063 Jan 10 j 12:59	10° <del>♊</del> 27'15	
min. Earth dist.	-2072 Oct 13 j 09:52	3° <del>♊</del> 42'45	47.53599 AU	conjunction	-2063 Apr 20 j 10:22	11° <del>♊</del> 55'14	-11°-58'-52
direct	-2071 Jan 02 j 18:10	2° <del>♊</del> 43'28		minimum elong	-2063 Apr 20 j 10:33	11° <del>♊</del> 55'14	11°58'52
conjunction	-2071 Apr 12 j 09:02	4° <del>♊</del> 10'33	-13°-27'-44	max. Earth dist.	-2063 Apr 19 j 21:08	11° <del>♊</del> 54'28	48.79811 AU
minimum elong	-2071 Apr 12 j 09:14	4° <del>♊</del> 10'34	13°27'45	retrograde	-2063 Jul 31 j 16:17	13° <del>♊</del> 25'21	
max. Earth dist.	-2071 Apr 12 j 07:10	4° <del>♊</del> 10'27	49.44781 AU	opposition	-2063 Oct 22 j 02:52	12° <del>♊</del> 25'18	-12°-23'00
retrograde	-2071 Jul 24 j 00:36	5° <del>♊</del> 40'08		min. Earth dist.	-2063 Oct 22 j 15:55	12° <del>♊</del> 24'40	46.79276 AU
opposition	-2071 Oct 14 j 13:52	4° <del>♊</del> 40'25	-13°-56'-3	direct	-2062 Jan 11 j 19:08	11° <del>♊</del> 25'24	
min. Earth dist.	-2071 Oct 14 j 16:38	4° <del>♊</del> 40'17	47.47269 AU	conjunction	-2062 Apr 21 j 16:42	12° <del>♊</del> 53'32	-11°-46'-41
direct	-2070 Jan 03 j 21:51	3° <del>♊</del> 41'07		minimum elong	-2062 Apr 21 j 16:55	12° <del>♊</del> 53'32	11°46'41
conjunction	-2070 Apr 13 j 15:08	5° <del>♊</del> 08'19	-13°-17'-25	max. Earth dist.	-2062 Apr 21 j 01:52	12° <del>♊</del> 52'41	48.69829 AU
minimum elong	-2070 Apr 13 j 15:20	5° <del>♊</del> 08'19	13°17'25	retrograde	-2062 Aug 02 j 00:42	14° <del>♊</del> 23'45	
max. Earth dist.	-2070 Apr 13 j 12:31	5° <del>♊</del> 08'10	49.38388 AU	opposition	-2062 Oct 23 j 07:39	13° <del>♊</del> 23'39	-12°-10'-14
retrograde	-2070 Jul 25 j 02:34	6° <del>♊</del> 37'57		min. Earth dist.	-2062 Oct 23 j 20:59	13° <del>♊</del> 23'00	46.68995 AU
opposition	-2070 Oct 15 j 18:20	5° <del>♊</del> 38'15	-13°-45'-15	direct	-2061 Jan 12 j 21:36	12° <del>♊</del> 23'39	
min. Earth dist.	-2070 Oct 15 j 21:39	5° <del>♊</del> 38'06	47.40492 AU	conjunction	-2061 Apr 22 j 22:58	13° <del>♊</del> 51'57	-11°-34'-14
direct	-2069 Jan 05 j 06:03	4° <del>♊</del> 38'55		minimum elong	-2061 Apr 22 j 23:10	13° <del>♊</del> 51'58	11°34'14
conjunction	-2069 Apr 14 j 21:02	6° <del>♊</del> 06'14	-13°-6'-53	max. Earth dist.	-2061 Apr 22 j 06:56	13° <del>♊</del> 51'02	48.59549 AU
minimum elong	-2069 Apr 14 j 21:15	6° <del>♊</del> 06'15	13°06'54	retrograde	-2061 Aug 03 j 08:13	15° <del>♊</del> 22'18	
max. Earth dist.	-2069 Apr 14 j 15:46	6° <del>♊</del> 05'56	49.31510 AU	opposition	-2061 Oct 24 j 12:37	14° <del>♊</del> 22'09	-11°-57'-11
retrograde	-2069 Jul 26 j 07:42	7° <del>♊</del> 35'58		min. Earth dist.	-2061 Oct 25 j 03:51	14° <del>♊</del> 21'25	46.58424 AU
opposition	-2069 Oct 16 j 22:58	6° <del>♊</del> 36'15	-13°-34'-12	direct	-2060 Jan 14 j 01:00	13° <del>♊</del> 22'05	
min. Earth dist.	-2069 Oct 17 j 04:06	6° <del>♊</del> 36'00	47.33214 AU	conjunction	-2060 Apr 23 j 05:28	14° <del>♊</del> 50'35	-11°-21'-31
direct	-2068 Jan 06 j 11:42	5° <del>♊</del> 36'53		minimum elong	-2060 Apr 23 j 05:41	14° <del>♊</del> 50'35	11°21'32
conjunction	-2068 Apr 15 j 03:16	7° <del>♊</del> 04'18	-12°-56'-7	max. Earth dist.	-2060 Apr 22 j 13:02	14° <del>♊</del> 49'38	48.48994 AU
minimum elong	-2068 Apr 15 j 03:28	7° <del>♊</del> 04'19	12°56'07	retrograde	-2060 Aug 03 j 11:50	16° <del>♊</del> 21'04	
max. Earth dist.	-2068 Apr 14 j 21:18	7° <del>♊</del> 03'58	49.24107 AU	opposition	-2060 Oct 24 j 17:26	15° <del>♊</del> 20'52	-11°-43'-52
retrograde	-2068 Jul 26 j 13:44	8° <del>♊</del> 34'06		min. Earth dist.	-2060 Oct 25 j 08:47	15° <del>♊</del> 20'08	46.47554 AU
opposition	-2068 Oct 17 j 03:35	7° <del>♊</del> 34'21	-13°-22'-57	direct	-2059 Jan 14 j 08:21	14° <del>♊</del> 20'45	



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 22

Attention, astronomical year style is used: The year -2059 in astronomical counting style is the year 2060 BCE in historical counting style.

conjunction	-2059 Apr 24 j 11:59	15°Y49'27	-11°-8'-32	retrograde	-2051 Aug 13 j 01:40	25°Y22'10	
minimum elong	-2059 Apr 24 j 12:10	15°Y49'28	11°08'32	opposition	-2051 Nov 02 j 17:33	24°Y21'16	-9°-32'-25
max. Earth dist.	-2059 Apr 23 j 17:14	15°Y48'22	48.38115 AU	min. Earth dist.	-2051 Nov 03 j 21:22	24°Y19'54	45.30090 AU
retrograde	-2059 Aug 04 j 17:19	17°Y20'07		direct	-2050 Jan 23 j 07:50	23°Y20'07	
opposition	-2059 Oct 25 j 22:28	16°Y19'53	-11°-30'-17	max. Earth dist.	-2050 May 02 j 21:18	24°Y49'13	47.20139 AU
min. Earth dist.	-2059 Oct 26 j 15:33	16°Y19'04	46.36339 AU				
direct	-2058 Jan 15 j 14:19	15°Y19'42		conjunction	-2050 May 04 j 03:55	24°Y51'01	-9°00'-41
				minimum elong	-2050 May 04 j 04:06	24°Y51'01	9°00'41
conjunction	-2058 Apr 25 j 18:49	16°Y48'38	-10°-55'-19	retrograde	-2050 Aug 14 j 07:17	26°Y23'25	
minimum elong	-2058 Apr 25 j 19:01	16°Y48'38	10°55'19	opposition	-2050 Nov 03 j 23:13	25°Y22'24	-9°-16'-27
max. Earth dist.	-2058 Apr 24 j 23:41	16°Y47'31	48.26845 AU	min. Earth dist.	-2050 Nov 05 j 02:56	25°Y21'02	45.15141 AU
retrograde	-2058 Aug 05 j 23:20	18°Y19'29		direct	-2049 Jan 24 j 15:11	24°Y21'06	
opposition	-2058 Oct 27 j 03:31	17°Y19'13	-11°-16'-27	max. Earth dist.	-2049 May 04 j 02:46	25°Y50'22	47.05216 AU
min. Earth dist.	-2058 Oct 27 j 22:06	17°Y18'19	46.24693 AU				
direct	-2057 Jan 16 j 19:43	16°Y18'57		conjunction	-2049 May 05 j 11:24	25°Y52'17	-8°-45'-11
max. Earth dist.	-2057 Apr 26 j 04:18	17°Y46'53	48.15131 AU	minimum elong	-2049 May 05 j 11:35	25°Y52'18	8°45'11
				retrograde	-2049 Aug 15 j 12:54	27°Y24'56	
conjunction	-2057 Apr 27 j 01:37	17°Y48'07	-10°-41'-51	opposition	-2049 Nov 05 j 05:11	26°Y23'49	-9°00'-13
minimum elong	-2057 Apr 27 j 01:48	17°Y48'07	10°41'50	min. Earth dist.	-2049 Nov 06 j 10:24	26°Y22'22	44.99961 AU
retrograde	-2057 Aug 07 j 08:17	19°Y19'10		direct	-2048 Jan 25 j 22:48	25°Y22'23	
opposition	-2057 Oct 28 j 08:42	18°Y18'51	-11°-2'-21	max. Earth dist.	-2048 May 04 j 10:29	26°Y51'58	46.90055 AU
min. Earth dist.	-2057 Oct 29 j 04:03	18°Y17'54	46.12579 AU				
direct	-2056 Jan 17 j 22:18	17°Y18'30		conjunction	-2048 May 05 j 19:04	26°Y53'53	-8°-29'-25
max. Earth dist.	-2056 Apr 26 j 09:24	18°Y46'33	48.02906 AU	minimum elong	-2048 May 05 j 19:14	26°Y53'54	8°29'24
				retrograde	-2048 Aug 15 j 17:40	28°Y26'48	
conjunction	-2056 Apr 27 j 08:28	18°Y47'54	-10°-28'-8	opposition	-2048 Nov 05 j 11:15	27°Y25'35	-8°-43'-41
minimum elong	-2056 Apr 27 j 08:40	18°Y47'54	10°28'08	min. Earth dist.	-2048 Nov 06 j 17:19	27°Y24'05	44.84518 AU
retrograde	-2056 Aug 07 j 15:39	20°Y19'07		direct	-2047 Jan 26 j 07:14	26°Y24'01	
opposition	-2056 Oct 28 j 14:09	19°Y18'44	-10°-48'-1	max. Earth dist.	-2047 May 05 j 16:28	27°Y53'49	46.74625 AU
min. Earth dist.	-2056 Oct 29 j 11:51	19°Y17'41	45.99942 AU				
direct	-2055 Jan 18 j 03:27	18°Y18'17		conjunction	-2047 May 07 j 02:56	27°Y55'51	-8°-13'-21
				minimum elong	-2047 May 07 j 03:07	27°Y55'52	8°13'21
conjunction	-2055 Apr 28 j 15:38	19°Y47'56	-10°-14'-11	retrograde	-2047 Aug 17 j 02:39	29°Y29'03	
minimum elong	-2055 Apr 28 j 15:50	19°Y47'56	10°14'11	opposition	-2047 Nov 06 j 17:16	28°Y27'45	-8°-26'-51
max. Earth dist.	-2055 Apr 27 j 15:37	19°Y46'32	47.90173 AU	min. Earth dist.	-2047 Nov 08 j 00:03	28°Y26'13	44.68788 AU
retrograde	-2055 Aug 08 j 20:34	21°Y19'19		direct	-2046 Jan 27 j 11:37	27°Y26'03	
opposition	-2055 Oct 29 j 19:22	20°Y18'51	-10°-33'-25	max. Earth dist.	-2046 May 06 j 23:21	28°Y56'07	46.58852 AU
min. Earth dist.	-2055 Oct 30 j 17:39	20°Y17'46	45.86796 AU				
direct	-2054 Jan 19 j 11:13	19°Y18'17		conjunction	-2046 May 08 j 11:06	28°Y58'14	-7°-57'-2
				minimum elong	-2046 May 08 j 11:16	28°Y58'14	7°57'01
conjunction	-2054 Apr 29 j 22:45	20°Y48'10	-10°00'00		-2046 Jun 24 j 14:53	0°8	
minimum elong	-2054 Apr 29 j 22:57	20°Y48'11	10°00'01	retrograde	-2046 Aug 18 j 11:58	0°831'44	
max. Earth dist.	-2054 Apr 28 j 20:03	20°Y46'37	47.76940 AU		-2046 Oct 12 j 22:53	30°R Y	
retrograde	-2054 Aug 10 j 02:35	22°Y19'45		opposition	-2046 Nov 07 j 23:43	29°Y30'20	-8°-9'-45
opposition	-2054 Oct 31 j 00:52	21°Y19'11	-10°-18'-34	min. Earth dist.	-2046 Nov 09 j 08:35	29°Y28'42	44.52687 AU
min. Earth dist.	-2054 Nov 01 j 01:06	21°Y18'00	45.73186 AU	direct	-2045 Jan 28 j 16:25	28°Y28'30	
direct	-2053 Jan 20 j 17:48	20°Y18'29		max. Earth dist.	-2045 May 08 j 06:43	29°Y58'52	46.42685 AU
max. Earth dist.	-2053 Apr 30 j 02:48	21°Y47'00	47.63261 AU				
				conjunction	-2045 May 09 j 19:16	0°801'03	-7°-40'-27
conjunction	-2053 May 01 j 05:53	21°Y48'35	-9°-45'-34	minimum elong	-2045 May 09 j 19:27	0°801'03	7°40'27
minimum elong	-2053 May 01 j 06:05	21°Y48'36	9°45'34		-2045 May 09 j 01:43	0°8	
retrograde	-2053 Aug 11 j 06:55	23°Y20'22		retrograde	-2045 Aug 19 j 20:54	1°834'51	
opposition	-2053 Nov 01 j 06:22	22°Y19'41	-10°-3'-28	opposition	-2045 Nov 09 j 06:11	0°833'20	-7°-52'-22
min. Earth dist.	-2053 Nov 02 j 07:40	22°Y18'27	45.59151 AU	min. Earth dist.	-2045 Nov 10 j 15:29	0°831'40	44.36156 AU
direct	-2052 Jan 22 j 01:20	21°Y18'51			-2045 Dec 08 j 17:18	30°R Y	
max. Earth dist.	-2052 Apr 30 j 08:09	22°Y47'30	47.49204 AU	direct	-2044 Jan 29 j 23:13	29°Y31'21	
					-2044 Mar 21 j 17:52	0°8	
conjunction	-2052 May 01 j 13:03	22°Y49'11	-9°-30'-52	max. Earth dist.	-2044 May 08 j 12:28	1°801'56	46.26055 AU
minimum elong	-2052 May 01 j 13:14	22°Y49'12	9°30'53				
retrograde	-2052 Aug 11 j 15:56	24°Y21'10		conjunction	-2044 May 10 j 03:42	1°804'16	-7°-23'-36
opposition	-2052 Nov 01 j 11:48	23°Y20'23	-9°-48'-5	minimum elong	-2044 May 10 j 03:52	1°804'17	7°23'35
min. Earth dist.	-2052 Nov 02 j 13:44	23°Y19'07	45.44776 AU	retrograde	-2044 Aug 20 j 05:15	2°838'23	
direct	-2051 Jan 22 j 04:40	22°Y19'23		opposition	-2044 Nov 09 j 12:51	1°836'44	-7°-34'-42
				min. Earth dist.	-2044 Nov 11 j 00:20	1°834'58	44.19159 AU
conjunction	-2051 May 02 j 20:27	23°Y49'59	-9°-15'-55	direct	-2043 Jan 30 j 06:24	0°834'35	
minimum elong	-2051 May 02 j 20:39	23°Y50'00	9°15'54	max. Earth dist.	-2043 May 09 j 20:36	2°805'30	46.08947 AU
max. Earth dist.	-2051 May 01 j 14:19	23°Y48'14	47.34809 AU				



Attention, astronomical year style is used: The year -2043 in astronomical counting style is the year 2044 BCE in historical counting style.

conjunction	-2043 May 11 j 12:29	2°807'53	-7°-6'-29	opposition	-2035 Nov 19 j 08:02	11°825'51	-4°-42'-43
minimum elong	-2043 May 11 j 12:39	2°807'54	7°06'29	min. Earth dist.	-2035 Nov 21 j 04:22	11°823'35	42.49804 AU
retrograde	-2043 Aug 21 j 10:39	3°842'19		direct	-2034 Feb 09 j 01:40	10°821'56	
opposition	-2043 Nov 10 j 19:42	2°840'31	-7°-16'-46	max. Earth dist.	-2034 May 19 j 21:50	11°856'07	44.39247 AU
min. Earth dist.	-2043 Nov 12 j 08:15	2°838'41	44.01673 AU				
direct	-2042 Jan 31 j 15:42	1°838'11		conjunction	-2034 May 22 j 01:31	11°859'19	-4°-20'-9
max. Earth dist.	-2042 May 11 j 03:03	3°809'19	45.91372 AU	minimum elong	-2034 May 22 j 01:38	11°859'20	4°20'08
				retrograde	-2034 Sep 01 j 01:49	13°837'19	
conjunction	-2042 May 12 j 21:12	3°811'52	-6°-49'-7	opposition	-2034 Nov 20 j 16:34	12°834'06	-4°-22'-6
minimum elong	-2042 May 12 j 21:22	3°811'52	6°49'06	min. Earth dist.	-2034 Nov 22 j 15:04	12°831'43	42.29628 AU
retrograde	-2042 Aug 22 j 19:14	4°846'36		direct	-2033 Feb 10 j 09:03	11°829'58	
opposition	-2042 Nov 12 j 02:34	3°844'40	-6°-58'-33	max. Earth dist.	-2033 May 21 j 08:11	13°804'41	44.18975 AU
min. Earth dist.	-2042 Nov 13 j 16:12	3°842'47	43.83752 AU				
direct	-2041 Feb 01 j 21:59	2°842'08		conjunction	-2033 May 23 j 12:14	13°807'56	-4°00'-16
max. Earth dist.	-2041 May 12 j 10:46	4°813'34	45.73365 AU	minimum elong	-2033 May 23 j 12:20	13°807'57	4°00'14
				retrograde	-2033 Sep 02 j 10:04	14°846'25	
conjunction	-2041 May 14 j 06:10	4°816'12	-6°-31'-28	opposition	-2033 Nov 22 j 01:19	13°843'02	-4°-1'-11
minimum elong	-2041 May 14 j 06:19	4°816'12	6°31'29	min. Earth dist.	-2033 Nov 24 j 00:26	13°840'36	42.09067 AU
retrograde	-2041 Aug 24 j 05:09	5°851'17		direct	-2032 Feb 11 j 20:03	12°838'42	
opposition	-2041 Nov 13 j 09:45	4°849'10	-6°-40'-3	max. Earth dist.	-2032 May 21 j 16:30	14°813'48	43.98292 AU
min. Earth dist.	-2041 Nov 15 j 01:19	4°847'11	43.65432 AU				
direct	-2040 Feb 03 j 03:17	3°846'26		conjunction	-2032 May 23 j 23:02	14°817'14	-3°-40'-5
max. Earth dist.	-2040 May 12 j 18:55	5°818'13	45.55000 AU	minimum elong	-2032 May 23 j 23:08	14°817'14	3°40'04
					-2032 Jun 22 j 04:55	15°8	
conjunction	-2040 May 14 j 15:08	5°820'54	-6°-13'-34	retrograde	-2032 Sep 02 j 19:19	15°856'12	
minimum elong	-2040 May 14 j 15:17	5°820'54	6°13'32		-2032 Nov 16 j 12:12	15°8	
retrograde	-2040 Aug 24 j 14:35	6°856'19		opposition	-2032 Nov 22 j 10:23	14°852'38	-3°-39'-58
opposition	-2040 Nov 13 j 16:56	5°854'03	-6°-21'-15	min. Earth dist.	-2032 Nov 24 j 11:02	14°850'07	41.88083 AU
min. Earth dist.	-2040 Nov 15 j 08:35	5°852'03	43.46776 AU	direct	-2031 Feb 12 j 06:05	13°848'03	
direct	-2039 Feb 03 j 10:15	4°851'06			-2031 May 07 j 06:56	15°8	
max. Earth dist.	-2039 May 14 j 02:02	6°823'11	45.36308 AU	max. Earth dist.	-2031 May 23 j 02:48	15°823'38	43.77152 AU
conjunction	-2039 May 16 j 00:22	6°826'00	-5°-55'-22	conjunction	-2031 May 25 j 10:24	15°827'09	-3°-19'-39
minimum elong	-2039 May 16 j 00:30	6°826'00	5°55'22	minimum elong	-2031 May 25 j 10:30	15°827'10	3°19'37
retrograde	-2039 Aug 25 j 23:09	8°801'47		retrograde	-2031 Sep 04 j 04:51	17°806'38	
opposition	-2039 Nov 15 j 00:20	6°859'21	-6°-2'-9	opposition	-2031 Nov 23 j 19:41	16°802'51	-3°-18'-27
min. Earth dist.	-2039 Nov 16 j 17:52	6°857'14	43.27837 AU	min. Earth dist.	-2031 Nov 25 j 22:10	16°800'13	41.66648 AU
direct	-2038 Feb 04 j 18:47	5°856'11			-2030 Jan 31 j 13:54	15°8	
max. Earth dist.	-2038 May 15 j 11:37	7°828'43	45.17354 AU	direct	-2030 Feb 13 j 15:18	14°858'00	
					-2030 Feb 26 j 13:42	15°8	
conjunction	-2038 May 17 j 09:52	7°831'32	-5°-36'-54	max. Earth dist.	-2030 May 24 j 12:44	16°834'03	43.55591 AU
minimum elong	-2038 May 17 j 10:00	7°831'33	5°36'53				
retrograde	-2038 Aug 27 j 05:11	9°807'43		conjunction	-2030 May 26 j 21:53	16°837'41	-2°-58'-55
opposition	-2038 Nov 16 j 08:00	8°805'07	-5°-42'-45	minimum elong	-2030 May 26 j 21:58	16°837'41	2°58'55
min. Earth dist.	-2038 Nov 18 j 01:56	8°802'58	43.08652 AU	retrograde	-2030 Sep 05 j 17:17	18°817'40	
direct	-2037 Feb 06 j 05:29	7°801'45		opposition	-2030 Nov 25 j 05:12	17°813'39	-2°-56'-38
max. Earth dist.	-2037 May 16 j 19:04	8°834'37	44.98177 AU	min. Earth dist.	-2030 Nov 27 j 08:04	17°811'00	41.44812 AU
				direct	-2029 Feb 14 j 22:46	16°808'31	
conjunction	-2037 May 18 j 19:12	8°837'35	-5°-18'-9	max. Earth dist.	-2029 May 25 j 22:20	17°845'01	43.33626 AU
minimum elong	-2037 May 18 j 19:19	8°837'35	5°18'08				
retrograde	-2037 Aug 28 j 14:53	10°814'10		conjunction	-2029 May 28 j 09:25	17°848'47	-2°-37'-55
opposition	-2037 Nov 17 j 15:50	9°811'25	-5°-23'-3	minimum elong	-2029 May 28 j 09:30	17°848'47	2°37'53
min. Earth dist.	-2037 Nov 19 j 10:26	9°809'14	42.89268 AU	retrograde	-2029 Sep 07 j 06:02	19°829'17	
direct	-2036 Feb 07 j 12:20	8°807'52		opposition	-2029 Nov 26 j 15:03	18°825'01	-2°-34'-31
max. Earth dist.	-2036 May 17 j 04:19	9°841'10	44.78783 AU	min. Earth dist.	-2029 Nov 28 j 20:02	18°822'15	41.22616 AU
				direct	-2028 Feb 16 j 08:04	17°819'36	
conjunction	-2036 May 19 j 05:05	9°844'10	-4°-59'-6	max. Earth dist.	-2028 May 26 j 10:09	18°856'39	43.11331 AU
minimum elong	-2036 May 19 j 05:13	9°844'11	4°59'06				
retrograde	-2036 Aug 29 j 00:43	11°821'13		conjunction	-2028 May 28 j 21:26	19°800'27	-2°-16'-38
opposition	-2036 Nov 17 j 23:51	10°818'19	-5°-3'-2	minimum elong	-2028 May 28 j 21:29	19°800'28	2°16'38
min. Earth dist.	-2036 Nov 19 j 19:59	10°816'03	42.69660 AU	retrograde	-2028 Sep 07 j 17:36	20°841'28	
direct	-2035 Feb 07 j 19:01	9°814'34		opposition	-2028 Nov 27 j 00:55	19°836'57	-2°-12'-5
max. Earth dist.	-2035 May 18 j 13:37	10°848'20	44.59167 AU	min. Earth dist.	-2028 Nov 29 j 06:13	19°834'09	41.00118 AU
				direct	-2027 Feb 16 j 20:17	18°831'13	
conjunction	-2035 May 20 j 15:12	10°851'24	-4°-39'-46	max. Earth dist.	-2027 May 27 j 20:03	20°808'45	42.88758 AU
minimum elong	-2035 May 20 j 15:18	10°851'25	4°39'46				
retrograde	-2035 Aug 30 j 13:08	12°828'55		conjunction	-2027 May 30 j 09:36	20°812'43	-1°-55'-4



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 24

Attention, astronomical year style is used: The year -2027 in astronomical counting style is the year 2028 BCE in historical counting style.

minimum elong	-2027 May 30 j 09:39	20° <b>8</b> 12'43	1°55'03	max. Earth dist.	-2019 Jun 07 j 01:29	0° <b>II</b> 14'41	41.01559 AU
retrograde	-2027 Sep 09 j 05:54	21° <b>8</b> 54'16					
opposition	-2027 Nov 28 j 11:12	20° <b>8</b> 49'30	-1°-49'-22	conjunction	-2019 Jun 09 j 22:59	0° <b>II</b> 19'24	1°07'16
min. Earth dist.	-2027 Nov 30 j 17:50	20° <b>8</b> 46'36	40.77392 AU	minimum elong	-2019 Jun 09 j 22:57	0° <b>II</b> 19'24	1°07'18
direct	-2026 Feb 18 j 07:04	19° <b>8</b> 43'26		retrograde	-2019 Sep 19 j 16:41	2° <b>II</b> 06'25	
max. Earth dist.	-2026 May 29 j 08:23	21° <b>8</b> 21'35	42.65962 AU	opposition	-2019 Dec 08 j 09:36	0° <b>II</b> 59'40	1°23'10
				min. Earth dist.	-2019 Dec 11 j 00:04	0° <b>II</b> 56'13	38.89296 AU
conjunction	-2026 May 31 j 22:05	21° <b>8</b> 25'35	-1°-33'-14		-2018 Feb 01 j 08:01	30° <b>R</b> 8	
minimum elong	-2026 May 31 j 22:07	21° <b>8</b> 25'35	1°33'13	direct	-2018 Feb 28 j 02:32	29° <b>8</b> 51'12	
retrograde	-2026 Sep 10 j 15:01	23° <b>8</b> 07'43			-2018 Mar 26 j 17:54	0° <b>II</b>	
opposition	-2026 Nov 29 j 21:50	22° <b>8</b> 02'41	-1°-26'-20	max. Earth dist.	-2018 Jun 08 j 16:11	1° <b>II</b> 34'50	40.77011 AU
min. Earth dist.	-2026 Dec 02 j 05:18	21° <b>8</b> 59'44	40.54476 AU				
direct	-2025 Feb 19 j 19:08	20° <b>8</b> 56'20		conjunction	-2018 Jun 11 j 14:22	1° <b>II</b> 39'38	1°31'14
max. Earth dist.	-2025 May 30 j 19:57	22° <b>8</b> 35'02	42.43019 AU	minimum elong	-2018 Jun 11 j 14:19	1° <b>II</b> 39'38	1°31'16
				retrograde	-2018 Sep 21 j 09:48	3° <b>II</b> 27'25	
conjunction	-2025 Jun 02 j 10:44	22° <b>8</b> 39'08	-1°-11'-7	opposition	-2018 Dec 09 j 23:03	2° <b>II</b> 20'21	1°48'31
minimum elong	-2025 Jun 02 j 10:46	22° <b>8</b> 39'09	1°11'06	min. Earth dist.	-2018 Dec 12 j 13:38	2° <b>II</b> 16'54	38.64638 AU
retrograde	-2025 Sep 12 j 03:49	24° <b>8</b> 21'53		direct	-2017 Mar 01 j 14:52	1° <b>II</b> 11'31	
opposition	-2025 Dec 01 j 08:38	23° <b>8</b> 16'36	-1°-3'00	max. Earth dist.	-2017 Jun 10 j 05:51	2° <b>II</b> 55'52	40.52179 AU
min. Earth dist.	-2025 Dec 03 j 16:11	23° <b>8</b> 13'38	40.31441 AU				
direct	-2024 Feb 21 j 04:35	22° <b>8</b> 09'57		conjunction	-2017 Jun 13 j 06:11	3° <b>II</b> 00'51	1°55'27
max. Earth dist.	-2024 May 31 j 07:47	23° <b>8</b> 49'16	42.19938 AU	minimum elong	-2017 Jun 13 j 06:07	3° <b>II</b> 00'51	1°55'29
				retrograde	-2017 Sep 23 j 03:31	4° <b>II</b> 49'25	
conjunction	-2024 Jun 02 j 23:46	23° <b>8</b> 53'28	0°-48'-43	opposition	-2017 Dec 11 j 12:55	3° <b>II</b> 42'02	2°14'09
minimum elong	-2024 Jun 02 j 23:48	23° <b>8</b> 53'28	0°48'43	min. Earth dist.	-2017 Dec 14 j 05:28	3° <b>II</b> 38'27	38.39745 AU
retrograde	-2024 Sep 12 j 18:25	25° <b>8</b> 36'52		direct	-2016 Mar 02 j 03:12	2° <b>II</b> 32'50	
opposition	-2024 Dec 01 j 19:58	24° <b>8</b> 31'20	0°-39'-22	max. Earth dist.	-2016 Jun 10 j 22:10	4° <b>II</b> 18'02	40.27129 AU
min. Earth dist.	-2024 Dec 04 j 05:12	24° <b>8</b> 28'15	40.08278 AU				
direct	-2023 Feb 21 j 12:59	23° <b>8</b> 24'23		conjunction	-2016 Jun 13 j 22:27	4° <b>II</b> 23'03	2°19'54
max. Earth dist.	-2023 Jun 01 j 21:10	25° <b>8</b> 04'26	41.96729 AU	minimum elong	-2016 Jun 13 j 22:22	4° <b>II</b> 23'03	2°19'57
				retrograde	-2016 Sep 23 j 18:27	6° <b>II</b> 12'25	
conjunction	-2023 Jun 04 j 13:16	25° <b>8</b> 08'40	0°-26'-4	opposition	-2016 Dec 12 j 03:13	5° <b>II</b> 04'43	2°40'02
minimum elong	-2023 Jun 04 j 13:16	25° <b>8</b> 08'40	0°26'02	min. Earth dist.	-2016 Dec 14 j 19:59	5° <b>II</b> 01'05	38.14660 AU
retrograde	-2023 Sep 14 j 08:09	26° <b>8</b> 52'44		direct	-2015 Mar 03 j 19:44	3° <b>II</b> 55'07	
opposition	-2023 Dec 03 j 07:23	25° <b>8</b> 46'59	0°-15'-27	max. Earth dist.	-2015 Jun 12 j 12:54	5° <b>II</b> 41'05	40.01913 AU
min. Earth dist.	-2023 Dec 05 j 16:32	25° <b>8</b> 43'54	39.84971 AU				
direct	-2022 Feb 23 j 01:00	24° <b>8</b> 39'45		conjunction	-2015 Jun 15 j 15:01	5° <b>II</b> 46'16	2°44'34
max. Earth dist.	-2022 Jun 03 j 08:54	26° <b>8</b> 20'26	41.73339 AU	minimum elong	-2015 Jun 15 j 14:56	5° <b>II</b> 46'16	2°44'37
				retrograde	-2015 Sep 25 j 10:43	7° <b>II</b> 36'27	
conjunction	-2022 Jun 06 j 03:03	26° <b>8</b> 24'50	0°-3'-11	opposition	-2015 Dec 13 j 17:51	6° <b>II</b> 28'24	3°06'10
minimum elong	-2022 Jun 06 j 03:02	26° <b>8</b> 24'50	0°03'10	min. Earth dist.	-2015 Dec 16 j 11:30	6° <b>II</b> 24'43	37.89467 AU
behind sun begin	-2022 Jun 05 j 20:32	26° <b>8</b> 24'25		direct	-2014 Mar 05 j 11:32	5° <b>II</b> 18'24	
behind sun end	-2022 Jun 06 j 09:32	26° <b>8</b> 25'14		max. Earth dist.	-2014 Jun 14 j 05:58	7° <b>II</b> 05'17	39.76596 AU
asc. node	-2022 Jul 25 j 18:09	27° <b>8</b> 37'03					
retrograde	-2022 Sep 15 j 23:07	28° <b>8</b> 09'36		conjunction	-2014 Jun 17 j 08:09	7° <b>II</b> 10'31	3°09'27
opposition	-2022 Dec 04 j 19:24	27° <b>8</b> 03'37	0°08'46	minimum elong	-2014 Jun 17 j 08:03	7° <b>II</b> 10'30	3°09'30
min. Earth dist.	-2022 Dec 07 j 06:11	27° <b>8</b> 00'25	39.61477 AU	retrograde	-2014 Sep 27 j 01:58	9° <b>II</b> 01'33	
direct	-2021 Feb 24 j 12:56	25° <b>8</b> 56'06		opposition	-2014 Dec 15 j 09:11	7° <b>II</b> 53'10	3°32'32
max. Earth dist.	-2021 Jun 04 j 23:00	27° <b>8</b> 37'34	41.49713 AU	min. Earth dist.	-2014 Dec 18 j 03:45	7° <b>II</b> 49'24	37.64218 AU
				direct	-2013 Mar 07 j 02:51	6° <b>II</b> 42'47	
conjunction	-2021 Jun 07 j 17:11	27° <b>8</b> 42'00	0°20'06	max. Earth dist.	-2013 Jun 15 j 22:39	8° <b>II</b> 30'32	39.51262 AU
minimum elong	-2021 Jun 07 j 17:10	27° <b>8</b> 42'00	0°20'09				
retrograde	-2021 Sep 17 j 11:24	29° <b>8</b> 27'30		conjunction	-2013 Jun 19 j 01:24	8° <b>II</b> 35'51	3°34'32
opposition	-2021 Dec 06 j 07:46	28° <b>8</b> 21'16	0°33'17	minimum elong	-2013 Jun 19 j 01:17	8° <b>II</b> 35'50	3°34'34
min. Earth dist.	-2021 Dec 08 j 19:29	28° <b>8</b> 18'01	39.37718 AU	retrograde	-2013 Sep 28 j 19:13	10° <b>II</b> 27'46	
direct	-2020 Feb 26 j 03:12	27° <b>8</b> 13'28		opposition	-2013 Dec 17 j 00:47	9° <b>II</b> 19'04	3°59'07
max. Earth dist.	-2020 Jun 05 j 11:36	28° <b>8</b> 55'35	41.25802 AU	min. Earth dist.	-2013 Dec 19 j 19:00	9° <b>II</b> 15'17	37.38986 AU
				direct	-2012 Mar 07 j 17:04	8° <b>II</b> 08'16	
conjunction	-2020 Jun 08 j 07:46	29° <b>8</b> 00'11	0°43'33	max. Earth dist.	-2012 Jun 16 j 15:32	9° <b>II</b> 56'55	39.25932 AU
minimum elong	-2020 Jun 08 j 07:45	29° <b>8</b> 00'11	0°43'35				
retrograde	-2020 Jul 17 j 09:40	0° <b>II</b>		conjunction	-2012 Jun 19 j 19:24	10° <b>II</b> 02'21	3°59'49
	-2020 Sep 18 j 02:24	0° <b>II</b> 46'26		minimum elong	-2012 Jun 19 j 19:16	10° <b>II</b> 02'21	3°59'51
	-2020 Nov 21 j 08:30	30° <b>R</b> 8		retrograde	-2012 Sep 29 j 14:08	11° <b>II</b> 55'13	
opposition	-2020 Dec 06 j 20:21	29° <b>8</b> 39'57	0°58'05	opposition	-2012 Dec 17 j 16:56	10° <b>II</b> 46'10	4°25'55
min. Earth dist.	-2020 Dec 09 j 08:56	29° <b>8</b> 36'38	39.13668 AU	min. Earth dist.	-2012 Dec 20 j 12:35	10° <b>II</b> 42'17	37.13786 AU
direct	-2019 Feb 26 j 14:51	28° <b>8</b> 31'50		direct	-2011 Mar 09 j 06:45	9° <b>II</b> 34'59	
	-2019 May 28 j 23:34	0° <b>II</b>		max. Earth dist.	-2011 Jun 18 j 10:34	11° <b>II</b> 24'42	39.00637 AU



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 25

Attention, astronomical year style is used: The year -2011 in astronomical counting style is the year 2012 BCE in historical counting style.

conjunction	-2011 Jun 21 j 13:58	11° <b>II</b> 30'08	4°25'15	opposition	-2003 Dec 31 j 20:33	24° <b>II</b> 54'13	8°33'45
minimum elong	-2011 Jun 21 j 13:49	11° <b>II</b> 30'08	4°25'17	min. Earth dist.	-2002 Jan 03 j 21:43	24° <b>II</b> 49'47	34.84900 AU
retrograde	-2011 Oct 01 j 10:32	13° <b>II</b> 23'57		direct	-2002 Mar 23 j 05:12	23° <b>II</b> 39'10	
opposition	-2011 Dec 19 j 09:37	12° <b>II</b> 14'35	4°52'54	max. Earth dist.	-2002 Jul 03 j 05:02	25° <b>II</b> 38'45	36.69952 AU
min. Earth dist.	-2011 Dec 22 j 04:52	12° <b>II</b> 10'43	36.88614 AU				
direct	-2010 Mar 10 j 23:01	11° <b>II</b> 03'02		conjunction	-2002 Jul 06 j 14:28	25° <b>II</b> 45'07	8°19'16
max. Earth dist.	-2010 Jun 20 j 03:48	12° <b>II</b> 53'40	38.75339 AU	minimum elong	-2002 Jul 06 j 14:11	25° <b>II</b> 45'06	8°19'19
				retrograde	-2002 Oct 16 j 15:07	27° <b>II</b> 48'41	
conjunction	-2010 Jun 23 j 08:51	12° <b>II</b> 59'17	4°50'51	opposition	-2001 Jan 02 j 18:52	26° <b>II</b> 35'58	9°01'35
minimum elong	-2010 Jun 23 j 08:42	12° <b>II</b> 59'16	4°50'54	min. Earth dist.	-2001 Jan 05 j 20:16	26° <b>II</b> 31'29	34.59436 AU
retrograde	-2010 Oct 03 j 07:06	14° <b>II</b> 54'06		direct	-2001 Mar 25 j 04:47	25° <b>II</b> 20'27	
opposition	-2010 Dec 21 j 02:52	13° <b>II</b> 44'24	5°20'04	max. Earth dist.	-2001 Jul 05 j 04:47	27° <b>II</b> 21'14	36.44351 AU
min. Earth dist.	-2010 Dec 23 j 23:26	13° <b>II</b> 40'26	36.63440 AU				
direct	-2009 Mar 12 j 14:44	12° <b>II</b> 32'28		conjunction	-2001 Jul 08 j 14:46	27° <b>II</b> 27'43	8°45'23
max. Earth dist.	-2009 Jun 21 j 23:45	14° <b>II</b> 24'13	38.49992 AU	minimum elong	-2001 Jul 08 j 14:28	27° <b>II</b> 27'42	8°45'25
				retrograde	-2001 Oct 18 j 17:06	29° <b>II</b> 32'31	
conjunction	-2009 Jun 25 j 04:33	14° <b>II</b> 29'51	5°16'36	opposition	-2000 Jan 04 j 17:37	28° <b>II</b> 19'22	9°29'22
minimum elong	-2009 Jun 25 j 04:22	14° <b>II</b> 29'51	5°16'37	min. Earth dist.	-2000 Jan 07 j 18:29	28° <b>II</b> 14'54	34.34196 AU
retrograde	-2009 Oct 05 j 02:08	16° <b>II</b> 25'41		direct	-2000 Mar 26 j 02:38	27° <b>II</b> 03'23	
opposition	-2009 Dec 22 j 20:40	15° <b>II</b> 15'40	5°47'24	max. Earth dist.	-2000 Jul 06 j 05:59	29° <b>II</b> 05'30	36.18970 AU
min. Earth dist.	-2009 Dec 25 j 17:48	15° <b>II</b> 11'39	36.38198 AU				
direct	-2008 Mar 13 j 10:22	14° <b>II</b> 03'20		conjunction	-2000 Jul 09 j 15:56	29° <b>II</b> 12'02	9°11'23
max. Earth dist.	-2008 Jun 22 j 18:20	15° <b>II</b> 56'05	38.24553 AU	minimum elong	-2000 Jul 09 j 15:37	29° <b>II</b> 12'01	9°11'25
					-2000 Aug 04 j 06:23	0° <b>III</b>	
conjunction	-2008 Jun 26 j 00:42	16° <b>II</b> 01'53	5°42'28	retrograde	-2000 Oct 19 j 16:39	1° <b>III</b> 18'05	
minimum elong	-2008 Jun 26 j 00:30	16° <b>II</b> 01'53	5°42'31	opposition	-1999 Jan 05 j 17:23	0° <b>III</b> 04'33	9°57'01
retrograde	-2008 Oct 05 j 23:19	17° <b>II</b> 58'45			-1999 Jan 08 j 19:06	30° <b>R</b> <b>II</b>	
opposition	-2008 Dec 23 j 15:04	16° <b>II</b> 48'24	6°14'52	min. Earth dist.	-1999 Jan 08 j 19:02	0° <b>III</b> 00'00	34.09207 AU
min. Earth dist.	-2008 Dec 26 j 12:41	16° <b>II</b> 44'19	36.12855 AU	direct	-1999 Mar 28 j 00:12	28° <b>II</b> 48'07	
direct	-2007 Mar 15 j 04:29	15° <b>II</b> 35'40			-1999 Jun 10 j 13:15	0° <b>III</b>	
max. Earth dist.	-2007 Jun 24 j 14:34	17° <b>II</b> 29'29	37.98966 AU	max. Earth dist.	-1999 Jul 08 j 08:26	0° <b>III</b> 51'37	35.93862 AU
conjunction	-2007 Jun 27 j 21:38	17° <b>II</b> 35'23	6°08'27	conjunction	-1999 Jul 11 j 17:41	0° <b>III</b> 58'11	9°37'13
minimum elong	-2007 Jun 27 j 21:26	17° <b>II</b> 35'23	6°08'29	minimum elong	-1999 Jul 11 j 17:22	0° <b>III</b> 58'09	9°37'15
retrograde	-2007 Oct 07 j 18:59	19° <b>II</b> 33'20		retrograde	-1999 Oct 21 j 19:00	3° <b>III</b> 05'31	
opposition	-2007 Dec 25 j 10:14	18° <b>II</b> 22'37	6°42'29	opposition	-1998 Jan 07 j 17:43	1° <b>III</b> 51'36	10°24'30
min. Earth dist.	-2007 Dec 28 j 09:25	18° <b>II</b> 18'25	35.87376 AU	min. Earth dist.	-1998 Jan 10 j 18:21	1° <b>III</b> 47'05	33.84500 AU
direct	-2006 Mar 16 j 22:01	17° <b>II</b> 09'26		direct	-1998 Mar 29 j 23:06	0° <b>III</b> 34'43	
max. Earth dist.	-2006 Jun 26 j 11:29	19° <b>II</b> 04'21	37.73261 AU	max. Earth dist.	-1998 Jul 10 j 10:13	2° <b>III</b> 39'33	35.69016 AU
conjunction	-2006 Jun 29 j 19:02	19° <b>II</b> 10'21	6°34'32	conjunction	-1998 Jul 13 j 20:13	2° <b>III</b> 46'14	10°02'52
minimum elong	-2006 Jun 29 j 18:49	19° <b>II</b> 10'20	6°34'35	minimum elong	-1998 Jul 13 j 19:52	2° <b>III</b> 46'12	10°02'55
retrograde	-2006 Oct 09 j 16:33	21° <b>II</b> 09'22		retrograde	-1998 Oct 23 j 23:15	4° <b>III</b> 54'55	
opposition	-2006 Dec 27 j 05:52	19° <b>II</b> 58'17	7°10'13	opposition	-1997 Jan 09 j 18:57	3° <b>III</b> 40'37	10°51'47
min. Earth dist.	-2006 Dec 30 j 04:50	19° <b>II</b> 54'04	35.61799 AU	min. Earth dist.	-1997 Jan 12 j 20:34	3° <b>III</b> 36'01	33.60067 AU
direct	-2005 Mar 18 j 16:58	18° <b>II</b> 44'39		direct	-1997 Mar 31 j 20:28	2° <b>III</b> 23'18	
max. Earth dist.	-2005 Jun 28 j 07:46	20° <b>II</b> 40'37	37.47447 AU	max. Earth dist.	-1997 Jul 12 j 14:36	4° <b>III</b> 29'38	35.44418 AU
conjunction	-2005 Jul 01 j 16:54	20° <b>II</b> 46'47	7°00'41	conjunction	-1997 Jul 15 j 23:26	4° <b>III</b> 36'17	10°28'17
minimum elong	-2005 Jul 01 j 16:39	20° <b>II</b> 46'46	7°00'43	minimum elong	-1997 Jul 15 j 23:05	4° <b>III</b> 36'16	10°28'20
retrograde	-2005 Oct 11 j 16:07	22° <b>II</b> 46'55		retrograde	-1997 Oct 26 j 03:39	6° <b>III</b> 46'19	
opposition	-2005 Dec 29 j 02:13	21° <b>II</b> 35'25	7°38'01	opposition	-1996 Jan 11 j 20:58	5° <b>III</b> 31'39	11°18'50
min. Earth dist.	-2004 Jan 01 j 02:47	21° <b>II</b> 31'05	35.36154 AU	min. Earth dist.	-1996 Jan 14 j 21:53	5° <b>III</b> 27'04	33.35854 AU
direct	-2004 Mar 19 j 10:55	20° <b>II</b> 21'20		direct	-1996 Apr 01 j 22:26	4° <b>III</b> 13'54	
max. Earth dist.	-2004 Jun 29 j 06:54	22° <b>II</b> 18'30	37.21583 AU	max. Earth dist.	-1996 Jul 13 j 17:30	6° <b>III</b> 21'34	35.20016 AU
conjunction	-2004 Jul 02 j 15:34	22° <b>II</b> 24'42	7°26'53	conjunction	-1996 Jul 17 j 03:30	6° <b>III</b> 28'23	10°53'26
minimum elong	-2004 Jul 02 j 15:19	22° <b>II</b> 24'41	7°26'56	minimum elong	-1996 Jul 17 j 03:07	6° <b>III</b> 28'21	10°53'29
retrograde	-2004 Oct 12 j 14:59	24° <b>II</b> 25'57		retrograde	-1996 Oct 27 j 11:20	8° <b>III</b> 39'47	
opposition	-2004 Dec 29 j 22:59	23° <b>II</b> 14'03	8°05'53	opposition	-1995 Jan 12 j 23:42	7° <b>III</b> 24'43	11°45'35
min. Earth dist.	-2003 Jan 01 j 23:22	23° <b>II</b> 09'42	35.10492 AU	min. Earth dist.	-1995 Jan 16 j 01:11	7° <b>III</b> 20'04	33.11846 AU
direct	-2003 Mar 21 j 08:27	21° <b>II</b> 59'29		direct	-1995 Apr 04 j 00:45	6° <b>III</b> 06'30	
max. Earth dist.	-2003 Jul 01 j 04:35	23° <b>II</b> 57'46	36.95727 AU	max. Earth dist.	-1995 Jul 15 j 23:31	8° <b>III</b> 15'43	34.95790 AU
conjunction	-2003 Jul 04 j 14:44	24° <b>II</b> 04'08	7°53'05	conjunction	-1995 Jul 19 j 08:31	8° <b>III</b> 22'31	11°18'17
minimum elong	-2003 Jul 04 j 14:28	24° <b>II</b> 04'07	7°53'08	minimum elong	-1995 Jul 19 j 08:09	8° <b>III</b> 22'29	11°18'19
retrograde	-2003 Oct 14 j 15:59	26° <b>II</b> 06'32		retrograde	-1995 Oct 29 j 16:58	10° <b>III</b> 35'16	



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 26

Attention, astronomical year style is used: The year -1994 in astronomical counting style is the year 1995 BCE in historical counting style.

opposition	-1994 Jan 15 j 03:34	9° <del>5</del> 19'48	12°12'00	max. Earth dist.	-1986 Aug 04 j 12:17	26° <del>5</del> 51'03	32.92884 AU
min. Earth dist.	-1994 Jan 18 j 05:12	9° <del>5</del> 15'07	32.88011 AU				
direct	-1994 Apr 06 j 05:05	8° <del>5</del> 01'08		conjunction	-1986 Aug 07 j 14:06	26° <del>5</del> 57'49	14°37'24
max. Earth dist.	-1994 Jul 18 j 04:24	10° <del>5</del> 11'43	34.71755 AU	minimum elong	-1986 Aug 07 j 13:43	26° <del>5</del> 57'47	14°37'26
				retrograde	-1986 Nov 18 j 07:01	29° <del>5</del> 23'04	
conjunction	-1994 Jul 21 j 13:59	10° <del>5</del> 18'38	11°42'45	opposition	-1985 Feb 03 j 03:29	28° <del>5</del> 03'45	15°43'03
minimum elong	-1994 Jul 21 j 13:35	10° <del>5</del> 18'36	11°42'48	min. Earth dist.	-1985 Feb 05 j 23:15	27° <del>5</del> 59'11	30.90037 AU
retrograde	-1994 Nov 01 j 00:11	12° <del>5</del> 32'46		direct	-1985 Apr 24 j 19:09	26° <del>5</del> 40'53	
opposition	-1993 Jan 17 j 08:05	11° <del>5</del> 16'53	12°38'02	max. Earth dist.	-1985 Aug 07 j 01:44	29° <del>5</del> 05'10	32.73216 AU
min. Earth dist.	-1993 Jan 20 j 09:15	11° <del>5</del> 12'11	32.64389 AU				
direct	-1993 Apr 08 j 08:57	9° <del>5</del> 57'43		conjunction	-1985 Aug 10 j 02:32	29° <del>5</del> 11'54	14°55'24
max. Earth dist.	-1993 Jul 20 j 11:16	12° <del>5</del> 09'47	34.47925 AU	minimum elong	-1985 Aug 10 j 02:10	29° <del>5</del> 11'52	14°55'26
					-1985 Sep 01 j 02:45	0° <del>0</del>	
conjunction	-1993 Jul 23 j 20:29	12° <del>5</del> 16'44	12°06'49	retrograde	-1985 Nov 20 j 22:00	1° <del>0</del> 38'32	
minimum elong	-1993 Jul 23 j 20:07	12° <del>5</del> 16'42	12°06'50	opposition	-1984 Feb 05 j 15:44	0° <del>0</del> 18'53	16°01'58
retrograde	-1993 Nov 03 j 05:48	14° <del>5</del> 32'14		min. Earth dist.	-1984 Feb 08 j 09:35	0° <del>0</del> 14'26	30.70987 AU
opposition	-1992 Jan 19 j 13:26	13° <del>5</del> 15'55	13°03'37		-1984 Feb 17 j 09:27	30° <del>0</del> 5	
min. Earth dist.	-1992 Jan 22 j 15:18	13° <del>5</del> 11'09	32.41000 AU	direct	-1984 Apr 26 j 06:35	28° <del>5</del> 55'40	
direct	-1992 Apr 09 j 13:07	11° <del>5</del> 56'16			-1984 Jun 30 j 15:47	0° <del>0</del>	
max. Earth dist.	-1992 Jul 21 j 18:55	14° <del>5</del> 09'47	34.24370 AU	max. Earth dist.	-1984 Aug 08 j 16:43	1° <del>0</del> 21'31	32.54201 AU
conjunction	-1992 Jul 25 j 03:40	14° <del>5</del> 16'47	12°30'23	conjunction	-1984 Aug 11 j 15:57	1° <del>0</del> 28'10	15°12'19
minimum elong	-1992 Jul 25 j 03:16	14° <del>5</del> 16'44	12°30'26	minimum elong	-1984 Aug 11 j 15:35	1° <del>0</del> 28'08	15°12'21
retrograde	-1992 Nov 04 j 14:17	16° <del>5</del> 33'39		retrograde	-1984 Nov 22 j 11:58	3° <del>0</del> 56'12	
opposition	-1991 Jan 20 j 19:37	15° <del>5</del> 16'52	13°28'40	opposition	-1983 Feb 07 j 05:16	2° <del>0</del> 36'13	16°19'42
min. Earth dist.	-1991 Jan 23 j 20:14	15° <del>5</del> 12'09	32.17912 AU	min. Earth dist.	-1983 Feb 09 j 22:51	2° <del>0</del> 31'45	30.52571 AU
direct	-1991 Apr 11 j 18:11	13° <del>5</del> 56'43		direct	-1983 Apr 28 j 17:49	1° <del>0</del> 12'39	
max. Earth dist.	-1991 Jul 24 j 02:50	16° <del>5</del> 11'40	34.01133 AU	max. Earth dist.	-1983 Aug 11 j 08:30	3° <del>0</del> 40'03	32.35841 AU
conjunction	-1991 Jul 27 j 11:34	16° <del>5</del> 18'44	12°53'24	conjunction	-1983 Aug 14 j 05:57	3° <del>0</del> 46'36	15°28'03
minimum elong	-1991 Jul 27 j 11:11	16° <del>5</del> 18'42	12°53'27	minimum elong	-1983 Aug 14 j 05:37	3° <del>0</del> 46'34	15°28'05
retrograde	-1991 Nov 06 j 21:34	18° <del>5</del> 36'59		retrograde	-1983 Nov 25 j 04:30	6° <del>0</del> 15'58	
opposition	-1990 Jan 23 j 02:45	17° <del>5</del> 19'45	13°53'06	opposition	-1982 Feb 09 j 19:35	4° <del>0</del> 55'40	16°36'10
min. Earth dist.	-1990 Jan 26 j 03:57	17° <del>5</del> 14'58	31.95196 AU	min. Earth dist.	-1982 Feb 12 j 10:51	4° <del>0</del> 51'20	30.34784 AU
direct	-1990 Apr 13 j 22:41	15° <del>5</del> 59'05		direct	-1982 May 01 j 06:49	3° <del>0</del> 31'46	
max. Earth dist.	-1990 Jul 26 j 13:12	18° <del>5</del> 15'36	33.78322 AU	max. Earth dist.	-1982 Aug 14 j 00:27	6° <del>0</del> 00'35	32.18118 AU
conjunction	-1990 Jul 29 j 20:11	18° <del>5</del> 22'35	13°15'48	conjunction	-1982 Aug 16 j 20:50	6° <del>0</del> 07'05	15°42'34
minimum elong	-1990 Jul 29 j 19:47	18° <del>5</del> 22'33	13°15'51	minimum elong	-1982 Aug 16 j 20:30	6° <del>0</del> 07'03	15°42'36
retrograde	-1990 Nov 09 j 06:21	20° <del>5</del> 42'13		retrograde	-1982 Nov 27 j 19:19	8° <del>0</del> 37'46	
opposition	-1989 Jan 25 j 10:41	19° <del>5</del> 24'32	14°16'51	opposition	-1981 Feb 12 j 10:51	7° <del>0</del> 17'08	16°51'17
min. Earth dist.	-1989 Jan 28 j 10:17	19° <del>5</del> 19'49	31.72944 AU	min. Earth dist.	-1981 Feb 15 j 01:49	7° <del>0</del> 12'49	30.17638 AU
direct	-1989 Apr 16 j 06:34	18° <del>5</del> 03'22		direct	-1981 May 03 j 19:09	5° <del>0</del> 52'55	
max. Earth dist.	-1989 Jul 28 j 22:25	20° <del>5</del> 21'20	33.56015 AU	max. Earth dist.	-1981 Aug 16 j 18:30	8° <del>0</del> 23'14	32.01071 AU
conjunction	-1989 Aug 01 j 05:24	20° <del>5</del> 28'22	13°37'29	conjunction	-1981 Aug 19 j 12:22	8° <del>0</del> 29'33	15°55'46
minimum elong	-1989 Aug 01 j 05:01	20° <del>5</del> 28'20	13°37'31	minimum elong	-1981 Aug 19 j 12:05	8° <del>0</del> 29'31	15°55'48
retrograde	-1989 Nov 11 j 17:31	22° <del>5</del> 49'24		retrograde	-1981 Nov 30 j 11:18	11° <del>0</del> 01'28	
opposition	-1988 Jan 27 j 19:30	21° <del>5</del> 31'15	14°39'48	opposition	-1980 Feb 15 j 02:54	9° <del>0</del> 40'31	17°04'57
min. Earth dist.	-1988 Jan 30 j 18:47	21° <del>5</del> 26'32	31.51246 AU	min. Earth dist.	-1980 Feb 17 j 15:33	9° <del>0</del> 36'20	30.01139 AU
direct	-1988 Apr 17 j 13:01	20° <del>5</del> 09'37		direct	-1980 May 05 j 10:57	8° <del>0</del> 15'58	
max. Earth dist.	-1988 Jul 30 j 10:56	22° <del>5</del> 29'13	33.34300 AU	max. Earth dist.	-1980 Aug 18 j 11:29	10° <del>0</del> 47'34	31.84709 AU
conjunction	-1988 Aug 02 j 15:36	22° <del>5</del> 36'07	13°58'22	conjunction	-1980 Aug 21 j 04:34	10° <del>0</del> 53'51	16°07'35
minimum elong	-1988 Aug 02 j 15:12	22° <del>5</del> 36'05	13°58'24	minimum elong	-1980 Aug 21 j 04:17	10° <del>0</del> 53'50	16°07'37
retrograde	-1988 Nov 13 j 04:08	24° <del>5</del> 58'32		retrograde	-1980 Dec 02 j 04:56	13° <del>0</del> 26'58	
opposition	-1987 Jan 29 j 05:13	23° <del>5</del> 39'59	15°01'53	opposition	-1979 Feb 16 j 19:44	12° <del>0</del> 05'41	17°17'07
min. Earth dist.	-1987 Feb 01 j 03:04	23° <del>5</del> 35'20	31.30161 AU	min. Earth dist.	-1979 Feb 19 j 07:25	12° <del>0</del> 01'34	29.85347 AU
direct	-1987 Apr 19 j 22:18	22° <del>5</del> 17'54		direct	-1979 May 08 j 00:51	10° <del>0</del> 40'49	
max. Earth dist.	-1987 Aug 01 j 22:15	24° <del>5</del> 38'59	33.13248 AU	max. Earth dist.	-1979 Aug 21 j 07:31	13° <del>0</del> 13'51	31.69106 AU
conjunction	-1987 Aug 05 j 02:28	24° <del>5</del> 45'54	14°18'22	conjunction	-1979 Aug 23 j 21:28	13° <del>0</del> 19'52	16°17'55
minimum elong	-1987 Aug 05 j 02:05	24° <del>5</del> 45'52	14°18'23	minimum elong	-1979 Aug 23 j 21:14	13° <del>0</del> 19'51	16°17'57
retrograde	-1987 Nov 15 j 18:25	27° <del>5</del> 09'44			-1979 Oct 09 j 08:45	15° <del>0</del>	
opposition	-1986 Jan 31 j 15:51	25° <del>5</del> 50'47	15°22'59	retrograde	-1979 Dec 04 j 22:01	15° <del>0</del> 54'07	
min. Earth dist.	-1986 Feb 03 j 12:22	25° <del>5</del> 46'12	31.09763 AU		-1978 Feb 02 j 17:03	15° <del>0</del> 5	
direct	-1986 Apr 22 j 08:13	24° <del>5</del> 28'18		opposition	-1978 Feb 19 j 13:27	14° <del>0</del> 32'30	17°27'39



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 27

Attention, astronomical year style is used: The year -1978 in astronomical counting style is the year 1979 BCE in historical counting style.

min. Earth dist.	-1978 Feb 21 j 22:52	14°♏28'31	29.70309 AU	opposition	-1970 Mar 12 j 09:17	4°♑53'34	17°44'16
direct	-1978 May 10 j 18:10	13°♏07'20		min. Earth dist.	-1970 Mar 13 j 22:11	4°♑50'58	28.85294 AU
	-1978 Aug 06 j 02:16	15°♏		direct	-1970 May 31 j 08:08	3°♑27'14	
max. Earth dist.	-1978 Aug 24 j 01:52	15°♏41'31	31.54328 AU				
conjunction	-1978 Aug 26 j 14:36	15°♏47'28	16°26'43	conjunction	-1970 Sep 15 j 23:49	6°♑12'48	16°32'59
minimum elong	-1978 Aug 26 j 14:22	15°♏47'27	16°26'45	minimum elong	-1970 Sep 15 j 23:54	6°♑12'49	16°33'01
retrograde	-1978 Dec 07 j 17:37	18°♏22'46		max. Earth dist.	-1970 Sep 14 j 12:07	6°♑09'11	30.73290 AU
opposition	-1977 Feb 22 j 07:46	17°♏00'50	17°36'29	retrograde	-1970 Dec 28 j 13:12	8°♑53'47	
min. Earth dist.	-1977 Feb 24 j 15:08	16°♏56'59	29.56123 AU	opposition	-1969 Mar 15 j 07:56	7°♑30'28	17°37'13
direct	-1977 May 13 j 11:57	15°♏35'22		min. Earth dist.	-1969 Mar 16 j 17:17	7°♑28'07	28.79314 AU
max. Earth dist.	-1977 Aug 26 j 23:26	18°♏10'53	31.40455 AU	direct	-1969 Jun 03 j 07:20	6°♑04'09	
				max. Earth dist.	-1969 Sep 17 j 10:42	8°♑46'30	30.67937 AU
conjunction	-1977 Aug 29 j 08:30	18°♏16'30	16°33'52	conjunction	-1969 Sep 18 j 20:12	8°♑49'54	16°25'16
minimum elong	-1977 Aug 29 j 08:19	18°♏16'29	16°33'53	minimum elong	-1969 Sep 18 j 20:19	8°♑49'55	16°25'15
retrograde	-1977 Dec 10 j 11:16	20°♏52'46		retrograde	-1969 Dec 31 j 10:43	11°♑31'10	
opposition	-1976 Feb 25 j 02:43	19°♏30'33	17°43'32	opposition	-1968 Mar 17 j 06:46	10°♑07'47	17°28'05
min. Earth dist.	-1976 Feb 27 j 08:07	19°♏26'49	29.42847 AU	min. Earth dist.	-1968 Mar 18 j 13:46	10°♑05'36	28.74319 AU
direct	-1976 May 15 j 06:32	18°♏04'50		direct	-1968 Jun 05 j 03:51	8°♑41'29	
max. Earth dist.	-1976 Aug 28 j 19:32	20°♏41'25	31.27581 AU	max. Earth dist.	-1968 Sep 19 j 11:15	11°♑24'17	30.63601 AU
conjunction	-1976 Aug 31 j 02:41	20°♏46'53	16°39'19	conjunction	-1968 Sep 20 j 16:46	11°♑27'18	16°15'37
minimum elong	-1976 Aug 31 j 02:32	20°♏46'52	16°39'21	minimum elong	-1968 Sep 20 j 16:56	11°♑27'19	16°15'38
retrograde	-1976 Dec 12 j 08:16	23°♏24'04		retrograde	-1967 Jan 02 j 06:56	14°♑08'44	
opposition	-1975 Feb 26 j 22:23	22°♏01'34	17°48'41	opposition	-1967 Mar 20 j 05:58	12°♑45'18	17°16'54
min. Earth dist.	-1975 Mar 01 j 00:35	21°♏58'04	29.30587 AU	min. Earth dist.	-1967 Mar 21 j 09:48	12°♑43'20	28.70293 AU
direct	-1975 May 18 j 01:30	20°♏35'38		direct	-1967 Jun 08 j 03:06	11°♑19'02	
max. Earth dist.	-1975 Aug 31 j 18:01	23°♏13'24	31.15771 AU	max. Earth dist.	-1967 Sep 22 j 09:40	14°♑01'59	30.60279 AU
conjunction	-1975 Sep 02 j 21:22	23°♏18'31	16°42'58	conjunction	-1967 Sep 23 j 13:00	14°♑04'46	16°04'05
minimum elong	-1975 Sep 02 j 21:16	23°♏18'31	16°42'59	minimum elong	-1967 Sep 23 j 13:12	14°♑04'47	16°04'05
retrograde	-1975 Dec 15 j 04:01	25°♏56'33		retrograde	-1966 Jan 05 j 04:03	16°♑46'16	
opposition	-1974 Mar 01 j 18:51	24°♏33'50	17°51'53	opposition	-1966 Mar 23 j 05:12	15°♑22'47	17°03'40
min. Earth dist.	-1974 Mar 03 j 19:00	24°♏30'27	29.19385 AU	min. Earth dist.	-1966 Mar 24 j 05:55	15°♑21'02	28.67278 AU
direct	-1974 May 20 j 21:43	23°♏07'44		direct	-1966 Jun 11 j 01:19	13°♑56'34	
max. Earth dist.	-1974 Sep 03 j 15:37	25°♏46'29	31.05090 AU	max. Earth dist.	-1966 Sep 25 j 10:27	16°♑39'46	30.58007 AU
conjunction	-1974 Sep 05 j 16:23	25°♏51'22	16°44'46	conjunction	-1966 Sep 26 j 09:22	16°♑42'07	15°50'41
minimum elong	-1974 Sep 05 j 16:19	25°♏51'21	16°44'48	minimum elong	-1966 Sep 26 j 09:37	16°♑42'08	15°50'42
retrograde	-1974 Dec 18 j 01:23	28°♏30'10		retrograde	-1965 Jan 07 j 23:31	19°♑23'33	
opposition	-1973 Mar 04 j 15:32	27°♏07'16	17°53'04	opposition	-1965 Mar 26 j 04:18	18°♑00'02	16°48'26
min. Earth dist.	-1973 Mar 06 j 11:53	27°♏04'09	29.09280 AU	min. Earth dist.	-1965 Mar 27 j 02:18	17°♑58'29	28.65290 AU
direct	-1973 May 23 j 18:33	25°♏41'03		direct	-1965 Jun 14 j 00:33	16°♑33'54	
max. Earth dist.	-1973 Sep 06 j 14:26	28°♏20'46	30.95522 AU	max. Earth dist.	-1965 Sep 28 j 08:46	19°♑17'01	30.56824 AU
conjunction	-1973 Sep 08 j 11:52	28°♏25'20	16°44'41	conjunction	-1965 Sep 29 j 05:19	19°♑19'06	15°35'26
minimum elong	-1973 Sep 08 j 11:50	28°♏25'20	16°44'42	minimum elong	-1965 Sep 29 j 05:35	19°♑19'08	15°35'26
	-1973 Oct 20 j 08:18	0°♑		retrograde	-1964 Jan 10 j 21:00	22°♑00'23	
retrograde	-1973 Dec 20 j 21:32	1°♑04'49		opposition	-1964 Mar 28 j 03:19	20°♑36'51	16°31'12
	-1972 Feb 24 j 16:07	30°♑		min. Earth dist.	-1964 Mar 28 j 21:19	20°♑35'35	28.64400 AU
opposition	-1972 Mar 06 j 13:01	29°♏41'47	17°52'12	direct	-1964 Jun 15 j 22:40	19°♑10'49	
min. Earth dist.	-1972 Mar 08 j 07:36	29°♏38'47	29.00246 AU	max. Earth dist.	-1964 Sep 30 j 09:08	21°♑53'58	30.56780 AU
direct	-1972 May 25 j 14:04	28°♏15'30					
	-1972 Aug 15 j 19:17	0°♑		conjunction	-1964 Oct 01 j 01:04	21°♑55'35	15°18'21
max. Earth dist.	-1972 Sep 08 j 13:22	0°♑56'04	30.87058 AU	minimum elong	-1964 Oct 01 j 01:22	21°♑55'37	15°18'22
conjunction	-1972 Sep 10 j 07:35	1°♑00'20	16°42'42	retrograde	-1963 Jan 12 j 16:19	24°♑36'37	
minimum elong	-1972 Sep 10 j 07:35	1°♑00'20	16°42'44	opposition	-1963 Mar 31 j 02:22	23°♑13'05	16°12'01
retrograde	-1972 Dec 22 j 19:55	3°♑40'25		min. Earth dist.	-1963 Mar 31 j 17:38	23°♑12'01	28.64652 AU
opposition	-1971 Mar 09 j 10:50	2°♑17'16	17°49'16	direct	-1963 Jun 18 j 22:37	21°♑47'12	
min. Earth dist.	-1971 Mar 11 j 01:40	2°♑14'32	28.92257 AU	conjunction	-1963 Oct 03 j 20:23	24°♑31'26	14°59'29
direct	-1971 May 28 j 12:10	0°♑50'57		minimum elong	-1963 Oct 03 j 20:42	24°♑31'28	14°59'29
max. Earth dist.	-1971 Sep 11 j 12:15	3°♑32'14	30.79650 AU	max. Earth dist.	-1963 Oct 03 j 07:20	24°♑30'06	30.57951 AU
conjunction	-1971 Sep 13 j 03:39	3°♑36'13	16°38'49	retrograde	-1962 Jan 15 j 13:23	27°♑12'07	
minimum elong	-1971 Sep 13 j 03:41	3°♑36'13	16°38'49	opposition	-1962 Apr 03 j 01:02	25°♑48'38	15°50'55
retrograde	-1971 Dec 25 j 16:31	6°♑16'49		min. Earth dist.	-1962 Apr 03 j 11:34	25°♑47'54	28.66120 AU
				direct	-1962 Jun 21 j 21:50	24°♑22'55	



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 28

Attention, astronomical year style is used: The year -1962 in astronomical counting style is the year 1963 BCE in historical counting style.

conjunction	-1962 Oct 06 j 15:26	27° <del>00</del> 06'33	14°38'53	conjunction	-1954 Oct 26 j 06:53	17° <del>00</del> 09'57	11°02'11
minimum elong	-1962 Oct 06 j 15:47	27° <del>00</del> 06'35	14°38'53	minimum elong	-1954 Oct 26 j 07:17	17° <del>00</del> 09'59	11°02'10
max. Earth dist.	-1962 Oct 06 j 06:48	27° <del>00</del> 05'40	30.60358 AU	max. Earth dist.	-1954 Oct 26 j 23:56	17° <del>00</del> 11'37	31.19904 AU
retrograde	-1961 Jan 18 j 08:17	29° <del>00</del> 46'49		retrograde	-1953 Feb 07 j 02:53	19° <del>00</del> 44'08	
opposition	-1961 Apr 05 j 23:33	28° <del>00</del> 23'26	15°27'58	opposition	-1953 Apr 26 j 19:56	18° <del>00</del> 22'17	11°30'14
min. Earth dist.	-1961 Apr 06 j 07:30	28° <del>00</del> 22'53	28.68808 AU	min. Earth dist.	-1953 Apr 26 j 00:54	18° <del>00</del> 23'34	29.29372 AU
direct	-1961 Jun 24 j 19:29	26° <del>00</del> 57'57		direct	-1953 Jul 15 j 18:30	16° <del>00</del> 59'20	
conjunction	-1961 Oct 09 j 10:03	29° <del>00</del> 40'52	14°16'37	conjunction	-1953 Oct 28 j 21:11	19° <del>00</del> 33'46	10°30'08
minimum elong	-1961 Oct 09 j 10:24	29° <del>00</del> 40'54	14°16'36	minimum elong	-1953 Oct 28 j 21:34	19° <del>00</del> 33'49	10°30'06
max. Earth dist.	-1961 Oct 09 j 04:42	29° <del>00</del> 40'19	30.64013 AU	max. Earth dist.	-1953 Oct 29 j 18:09	19° <del>00</del> 35'49	31.31632 AU
	-1961 Oct 17 j 07:47	0° <del>00</del> 00		retrograde	-1952 Feb 09 j 14:57	22° <del>00</del> 06'54	
retrograde	-1960 Jan 21 j 05:03	2° <del>00</del> 20'37		opposition	-1952 Apr 28 j 13:50	20° <del>00</del> 45'15	10°55'25
opposition	-1960 Apr 07 j 21:29	0° <del>00</del> 57'23	15°03'16	min. Earth dist.	-1952 Apr 27 j 16:44	20° <del>00</del> 46'40	29.41169 AU
min. Earth dist.	-1960 Apr 08 j 00:48	0° <del>00</del> 57'09	28.72700 AU	direct	-1952 Jul 17 j 13:26	19° <del>00</del> 22'38	
	-1960 May 15 j 14:32	30° <del>00</del> 00		conjunction	-1952 Oct 30 j 10:36	21° <del>00</del> 55'44	9°57'17
direct	-1960 Jun 26 j 19:14	29° <del>00</del> 32'10		minimum elong	-1952 Oct 30 j 10:59	21° <del>00</del> 55'46	9°57'15
	-1960 Aug 06 j 10:16	0° <del>00</del> 00		max. Earth dist.	-1952 Oct 31 j 09:43	21° <del>00</del> 57'57	31.44268 AU
conjunction	-1960 Oct 11 j 04:20	2° <del>00</del> 14'18	13°52'46	retrograde	-1951 Feb 11 j 05:11	24° <del>00</del> 27'45	
minimum elong	-1960 Oct 11 j 04:44	2° <del>00</del> 14'21	13°52'46	min. Earth dist.	-1951 Apr 30 j 05:42	23° <del>00</del> 08'00	29.53908 AU
max. Earth dist.	-1960 Oct 11 j 02:50	2° <del>00</del> 14'09	30.68859 AU	opposition	-1951 May 01 j 06:58	23° <del>00</del> 06'19	10°19'48
retrograde	-1959 Jan 23 j 00:09	4° <del>00</del> 53'30		direct	-1951 Jul 20 j 07:01	21° <del>00</del> 44'02	
opposition	-1959 Apr 10 j 19:24	3° <del>00</del> 30'25	14°36'55	conjunction	-1951 Nov 01 j 23:15	24° <del>00</del> 15'46	9°23'45
min. Earth dist.	-1959 Apr 10 j 20:07	3° <del>00</del> 30'22	28.77761 AU	minimum elong	-1951 Nov 01 j 23:36	24° <del>00</del> 15'48	9°23'43
direct	-1959 Jun 29 j 16:38	2° <del>00</del> 05'31		max. Earth dist.	-1951 Nov 03 j 02:16	24° <del>00</del> 18'21	31.57837 AU
conjunction	-1959 Oct 13 j 22:00	4° <del>00</del> 46'46	13°27'26	retrograde	-1950 Feb 13 j 17:06	26° <del>00</del> 46'40	
minimum elong	-1959 Oct 13 j 22:23	4° <del>00</del> 46'48	13°27'26	opposition	-1950 May 03 j 23:29	25° <del>00</del> 25'28	9°43'30
max. Earth dist.	-1959 Oct 14 j 00:11	4° <del>00</del> 46'59	30.74864 AU	min. Earth dist.	-1950 May 02 j 20:05	25° <del>00</del> 27'17	29.67616 AU
retrograde	-1958 Jan 25 j 18:09	7° <del>00</del> 25'19		direct	-1950 Jul 22 j 22:53	24° <del>00</del> 03'33	
opposition	-1958 Apr 13 j 16:46	6° <del>00</del> 02'26	14°09'00	conjunction	-1950 Nov 04 j 11:15	26° <del>00</del> 33'54	8°49'36
min. Earth dist.	-1958 Apr 13 j 13:16	6° <del>00</del> 02'40	28.83921 AU	minimum elong	-1950 Nov 04 j 11:37	26° <del>00</del> 33'56	8°49'34
direct	-1958 Jul 02 j 15:08	4° <del>00</del> 37'51		max. Earth dist.	-1950 Nov 05 j 16:57	26° <del>00</del> 36'44	31.72380 AU
conjunction	-1958 Oct 16 j 15:17	7° <del>00</del> 18'09	13°00'44	retrograde	-1949 Feb 16 j 05:52	29° <del>00</del> 03'40	
minimum elong	-1958 Oct 16 j 15:42	7° <del>00</del> 18'11	13°00'44	min. Earth dist.	-1949 May 05 j 07:21	27° <del>00</del> 44'49	29.82303 AU
max. Earth dist.	-1958 Oct 16 j 20:24	7° <del>00</del> 18'39	30.81938 AU	opposition	-1949 May 06 j 14:52	27° <del>00</del> 42'44	9°06'37
retrograde	-1957 Jan 28 j 12:37	9° <del>00</del> 55'57		direct	-1949 Jul 25 j 16:27	26° <del>00</del> 21'12	
opposition	-1957 Apr 16 j 13:38	8° <del>00</del> 33'16	13°39'39	conjunction	-1949 Nov 06 j 22:31	28° <del>00</del> 50'12	8°14'57
min. Earth dist.	-1957 Apr 16 j 07:27	8° <del>00</del> 33'42	28.91133 AU	minimum elong	-1949 Nov 06 j 22:50	28° <del>00</del> 50'14	8°14'56
direct	-1957 Jul 05 j 11:23	7° <del>00</del> 09'01		max. Earth dist.	-1949 Nov 08 j 07:19	28° <del>00</del> 53'17	31.87876 AU
conjunction	-1957 Oct 19 j 08:10	9° <del>00</del> 48'18	12°32'45		-1949 Dec 09 j 00:30	0° <del>00</del> 00	
minimum elong	-1957 Oct 19 j 08:34	9° <del>00</del> 48'20	12°32'44	retrograde	-1948 Feb 18 j 18:20	1° <del>00</del> 18'50	
max. Earth dist.	-1957 Oct 19 j 17:04	9° <del>00</del> 49'11	30.90037 AU	min. Earth dist.	-1948 May 06 j 19:53	0° <del>00</del> 00'26	29.97962 AU
retrograde	-1956 Jan 31 j 05:06	12° <del>00</del> 25'18			-1948 May 07 j 02:21	30° <del>00</del> 00	
opposition	-1956 Apr 18 j 10:05	11° <del>00</del> 02'50	13°09'00	opposition	-1948 May 08 j 05:51	29° <del>00</del> 45'11	8°29'15
min. Earth dist.	-1956 Apr 18 j 00:35	11° <del>00</del> 03'29	28.99315 AU	direct	-1948 Jul 27 j 07:34	28° <del>00</del> 37'05	
direct	-1956 Jul 07 j 09:12	9° <del>00</del> 38'55			-1948 Oct 09 j 13:22	0° <del>00</del> 00	
conjunction	-1956 Oct 21 j 00:16	12° <del>00</del> 17'04	12°03'36	conjunction	-1948 Nov 08 j 09:00	1° <del>00</del> 04'43	7°39'53
minimum elong	-1956 Oct 21 j 00:41	12° <del>00</del> 17'07	12°03'35	minimum elong	-1948 Nov 08 j 09:18	1° <del>00</del> 04'44	7°39'51
max. Earth dist.	-1956 Oct 21 j 11:27	12° <del>00</del> 18'11	30.99084 AU	max. Earth dist.	-1948 Nov 09 j 20:59	1° <del>00</del> 08'05	32.04310 AU
retrograde	-1955 Feb 01 j 21:12	14° <del>00</del> 53'12		retrograde	-1947 Feb 20 j 04:34	3° <del>00</del> 32'12	
opposition	-1955 Apr 21 j 06:04	13° <del>00</del> 30'57	12°37'08	min. Earth dist.	-1947 May 09 j 06:40	2° <del>00</del> 14'20	30.14528 AU
min. Earth dist.	-1955 Apr 20 j 17:22	13° <del>00</del> 31'49	29.08442 AU	opposition	-1947 May 10 j 19:59	2° <del>00</del> 11'54	7°51'30
direct	-1955 Jul 10 j 04:30	12° <del>00</del> 07'21		direct	-1947 Jul 29 j 23:35	0° <del>00</del> 51'14	
conjunction	-1955 Oct 23 j 16:01	14° <del>00</del> 44'20	11°33'23	conjunction	-1947 Nov 10 j 18:46	3° <del>00</del> 17'30	7°04'29
minimum elong	-1955 Oct 23 j 16:25	14° <del>00</del> 44'23	11°33'22	minimum elong	-1947 Nov 10 j 19:03	3° <del>00</del> 17'31	7°04'29
max. Earth dist.	-1955 Oct 24 j 07:11	14° <del>00</del> 45'50	31.09052 AU	max. Earth dist.	-1947 Nov 12 j 08:57	3° <del>00</del> 21'03	32.21598 AU
retrograde	-1954 Feb 04 j 10:56	17° <del>00</del> 19'31		retrograde	-1946 Feb 22 j 14:47	5° <del>00</del> 43'51	
min. Earth dist.	-1954 Apr 23 j 10:05	15° <del>00</del> 58'31	29.18462 AU	min. Earth dist.	-1946 May 11 j 17:20	4° <del>00</del> 14'20	30.31955 AU
opposition	-1954 Apr 24 j 01:23	15° <del>00</del> 57'28	12°04'11	opposition	-1946 May 13 j 09:21	4° <del>00</del> 14'23	7°13'29
direct	-1954 Jul 13 j 00:33	14° <del>00</del> 34'13		direct	-1946 Aug 01 j 12:24	3° <del>00</del> 03'41	



# Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 29

Attention, astronomical year style is used: The year -1946 in astronomical counting style is the year 1947 BCE in historical counting style.

conjunction	-1946 Nov 13 j 03:58	5°M28'36	6°28'52	conjunction	-1938 Nov 29 j 04:35	21°M54'49	1°44'54
minimum elong	-1946 Nov 13 j 04:14	5°M28'37	6°28'51	minimum elong	-1938 Nov 29 j 04:39	21°M54'49	1°44'52
max. Earth dist.	-1946 Nov 14 j 21:35	5°M32'26	32.39680 AU	max. Earth dist.	-1938 Dec 01 j 13:13	21°M59'42	34.04464 AU
retrograde	-1945 Feb 24 j 22:29	7°M53'48		retrograde	-1937 Mar 12 j 23:56	24°M10'43	
min. Earth dist.	-1945 May 14 j 03:48	6°M36'56	30.50133 AU	min. Earth dist.	-1937 May 30 j 13:03	22°M57'19	32.15795 AU
opposition	-1945 May 15 j 21:58	6°M34'12	6°35'17	opposition	-1937 Jun 02 j 00:03	22°M53'41	1°32'55
direct	-1945 Aug 04 j 02:51	5°M14'27		direct	-1937 Aug 21 j 07:14	21°M37'12	
conjunction	-1945 Nov 15 j 12:20	7°M38'00	5°53'07	conjunction	-1937 Dec 01 j 07:34	23°M50'01	1°10'25
minimum elong	-1945 Nov 15 j 12:34	7°M38'02	5°53'05	minimum elong	-1937 Dec 01 j 07:36	23°M50'01	1°10'23
max. Earth dist.	-1945 Nov 17 j 07:19	7°M41'57	32.58450 AU	max. Earth dist.	-1937 Dec 03 j 19:10	23°M55'08	34.27285 AU
retrograde	-1944 Feb 27 j 08:05	10°M02'05		retrograde	-1936 Mar 14 j 00:28	26°M04'47	
min. Earth dist.	-1944 May 15 j 12:33	8°M45'45	30.68999 AU	min. Earth dist.	-1936 May 31 j 17:39	24°M51'47	32.38822 AU
opposition	-1944 May 17 j 09:49	8°M42'50	5°57'00	opposition	-1936 Jun 03 j 05:58	24°M48'05	0°56'28
direct	-1944 Aug 05 j 14:08	7°M23'32		direct	-1936 Aug 22 j 15:45	23°M32'00	
conjunction	-1944 Nov 16 j 20:14	9°M45'44	5°17'18	conjunction	-1936 Dec 02 j 09:51	25°M43'34	0°36'19
minimum elong	-1944 Nov 16 j 20:28	9°M45'45	5°17'16	minimum elong	-1936 Dec 02 j 09:53	25°M43'34	0°36'17
max. Earth dist.	-1944 Nov 18 j 18:26	9°M49'56	32.77841 AU	max. Earth dist.	-1936 Dec 04 j 22:16	25°M48'42	34.50612 AU
retrograde	-1943 Feb 28 j 13:49	12°M08'40		retrograde	-1935 Mar 16 j 03:35	27°M57'14	
min. Earth dist.	-1943 May 17 j 22:36	10°M52'45	30.88465 AU	min. Earth dist.	-1935 Jun 02 j 19:56	26°M44'44	32.62365 AU
opposition	-1943 May 19 j 21:06	10°M49'46	5°18'43	opposition	-1935 Jun 05 j 11:09	26°M40'52	0°20'27
direct	-1943 Aug 08 j 01:55	9°M30'55		direct	-1935 Aug 24 j 20:40	25°M25'12	
conjunction	-1943 Nov 19 j 03:20	11°M51'45	4°41'30	conjunction	-1935 Dec 04 j 11:36	27°M35'32	0°02'42
minimum elong	-1943 Nov 19 j 03:31	11°M51'46	4°41'28	minimum elong	-1935 Dec 04 j 11:36	27°M35'32	0°02'40
max. Earth dist.	-1943 Nov 21 j 02:31	11°M56'01	32.97779 AU	behind sun begin	-1935 Dec 04 j 05:15	27°M35'02	
retrograde	-1942 Mar 02 j 21:46	14°M13'31		behind sun end	-1935 Dec 04 j 17:57	27°M36'03	
min. Earth dist.	-1942 May 20 j 05:58	12°M58'07	31.08466 AU	max. Earth dist.	-1935 Dec 07 j 02:40	27°M40'52	34.74392 AU
opposition	-1942 May 22 j 07:29	12°M54'58	4°40'31	desc. node	-1934 Jan 02 j 10:18	28°M32'15	
direct	-1942 Aug 10 j 11:28	11°M36'32		retrograde	-1934 Mar 18 j 03:44	29°M48'09	
conjunction	-1942 Nov 21 j 09:54	13°M56'01	4°05'47	min. Earth dist.	-1934 Jun 04 j 23:59	28°M36'00	32.86348 AU
minimum elong	-1942 Nov 21 j 10:05	13°M56'02	4°05'45	opposition	-1934 Jun 07 j 15:45	28°M32'08	0°-15'-2
max. Earth dist.	-1942 Nov 23 j 11:39	14°M00'28	33.18190 AU	direct	-1934 Aug 27 j 01:25	27°M16'53	
retrograde	-1942 Dec 22 j 09:17	15°M		conjunction	-1934 Dec 06 j 12:49	29°M26'01	0°-30'-35
min. Earth dist.	-1941 Mar 05 j 03:44	16°M16'37		minimum elong	-1934 Dec 06 j 12:47	29°M26'01	0°30'38
opposition	-1941 May 22 j 14:44	15°M01'34	31.28949 AU	max. Earth dist.	-1934 Dec 09 j 04:41	29°M31'22	34.98565 AU
direct	-1941 May 23 j 15:31	15°RM		retrograde	-1934 Dec 23 j 15:15	0°M	
conjunction	-1941 Nov 23 j 15:44	15°M58'29	3°30'13	retrograde	-1933 Mar 20 j 05:45	1°M37'34	
minimum elong	-1941 Nov 23 j 15:52	15°M58'30	3°30'11	min. Earth dist.	-1933 Jun 07 j 01:19	0°M25'54	33.10696 AU
max. Earth dist.	-1941 Nov 25 j 18:55	16°M03'01	33.39059 AU	opposition	-1933 Jun 09 j 19:26	0°M21'55	0°-50'00
retrograde	-1940 Mar 06 j 10:15	18°M17'54		direct	-1933 Jun 25 j 03:19	30°RM	
min. Earth dist.	-1940 May 23 j 20:49	17°M03'18	31.49896 AU	conjunction	-1933 Aug 29 j 04:28	29°M07'05	
opposition	-1940 May 26 j 01:58	16°M59'58	3°24'37	minimum elong	-1933 Dec 08 j 13:27	1°M15'04	-1°-3'-18
direct	-1940 Aug 14 j 06:49	15°M42'20		max. Earth dist.	-1933 Dec 08 j 13:24	1°M15'04	1°03'21
conjunction	-1940 Nov 24 j 20:38	17°M59'06	2°54'50	retrograde	-1933 Dec 11 j 07:01	1°M20'30	35.23036 AU
minimum elong	-1940 Nov 24 j 20:45	17°M59'07	2°54'49	min. Earth dist.	-1932 Mar 21 j 07:47	3°M25'35	
max. Earth dist.	-1940 Nov 27 j 01:45	18°M03'46	33.60368 AU	opposition	-1932 Jun 08 j 04:06	2°M14'17	33.35342 AU
retrograde	-1939 Mar 08 j 17:07	20°M17'20		direct	-1932 Jun 10 j 22:50	2°M10'17	-1°-24'-25
min. Earth dist.	-1939 May 26 j 03:37	19°M03'06	31.71339 AU	conjunction	-1932 Aug 30 j 05:49	0°M55'52	
opposition	-1939 May 28 j 10:14	18°M59'42	2°47'03	minimum elong	-1932 Dec 09 j 13:34	3°M02'43	-1°-35'-31
direct	-1939 Aug 16 j 14:58	17°M42'27		max. Earth dist.	-1932 Dec 09 j 13:30	3°M02'42	1°35'34
conjunction	-1939 Nov 27 j 01:02	19°M57'52	2°19'43	retrograde	-1932 Dec 12 j 08:32	3°M08'14	35.47747 AU
minimum elong	-1939 Nov 27 j 01:07	19°M57'53	2°19'41	min. Earth dist.	-1931 Mar 23 j 07:52	5°M12'13	
max. Earth dist.	-1939 Nov 29 j 08:28	20°M02'42	33.82166 AU	opposition	-1931 Jun 10 j 05:23	4°M01'20	33.60185 AU
retrograde	-1938 Mar 10 j 20:22	22°M14'55		direct	-1931 Jun 13 j 01:30	3°M57'16	-1°-58'-14
min. Earth dist.	-1938 May 28 j 08:47	21°M01'06	31.93292 AU	conjunction	-1931 Sep 01 j 10:14	2°M43'15	
opposition	-1938 May 30 j 17:26	20°M57'35	2°09'48	minimum elong	-1931 Dec 11 j 13:12	4°M48'59	-2°-7'-12
direct	-1938 Aug 19 j 00:14	19°M40'42		max. Earth dist.	-1931 Dec 11 j 13:07	4°M48'58	2°07'15
				retrograde	-1931 Dec 14 j 08:28	4°M54'29	35.72596 AU
				min. Earth dist.	-1930 Mar 25 j 08:59	6°M57'29	
					-1930 Jun 12 j 06:22	5°M46'58	33.85169 AU



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 30

Attention, astronomical year style is used: The year -1930 in astronomical counting style is the year 1931 BCE in historical counting style.

opposition	-1930 Jun 15 j 03:30	5°♂42'52	-2°-31'-27	conjunction	-1922 Dec 26 j 10:33	19°♂44'09	-6°-25'-51
direct	-1930 Sep 03 j 12:13	4°♂29'14		minimum elong	-1922 Dec 26 j 10:22	19°♂44'08	6°25'53
				max. Earth dist.	-1922 Dec 29 j 13:23	19°♂49'53	37.99944 AU
conjunction	-1930 Dec 13 j 12:29	6°♂33'52	-2°-38'-20	retrograde	-1921 Apr 09 j 03:05	21°♂44'22	
minimum elong	-1930 Dec 13 j 12:23	6°♂33'52	2°38'22	min. Earth dist.	-1921 Jun 27 j 14:27	20°♂36'48	36.14188 AU
max. Earth dist.	-1930 Dec 16 j 09:24	6°♂39'28	35.97532 AU	opposition	-1921 Jun 30 j 19:15	20°♂32'26	-7°00'-58
retrograde	-1929 Mar 27 j 06:45	8°♂41'23		direct	-1921 Sep 19 j 08:34	19°♂21'51	
min. Earth dist.	-1929 Jun 14 j 07:43	7°♂31'10	34.10210 AU				
opposition	-1929 Jun 17 j 04:57	7°♂27'05	-3°-4'-3	conjunction	-1921 Dec 28 j 05:10	21°♂17'36	-6°-51'-27
direct	-1929 Sep 05 j 15:48	6°♂13'49		minimum elong	-1921 Dec 28 j 04:58	21°♂17'35	6°51'31
				max. Earth dist.	-1921 Dec 31 j 09:33	21°♂23'25	38.25691 AU
conjunction	-1929 Dec 15 j 10:57	8°♂17'22	-3°-8'-53	retrograde	-1920 Apr 09 j 20:53	23°♂17'02	
minimum elong	-1929 Dec 15 j 10:50	8°♂17'21	3°08'57	min. Earth dist.	-1920 Jun 28 j 11:36	22°♂09'42	36.40120 AU
max. Earth dist.	-1929 Dec 18 j 07:38	8°♂22'54	36.22502 AU	opposition	-1920 Jul 01 j 15:51	22°♂05'23	-7°-27'-29
retrograde	-1928 Mar 28 j 04:51	10°♂23'53		direct	-1920 Sep 20 j 05:44	20°♂55'10	
min. Earth dist.	-1928 Jun 15 j 06:48	9°♂14'04	34.35303 AU				
opposition	-1928 Jun 18 j 05:49	9°♂09'53	-3°-36'-1	conjunction	-1920 Dec 28 j 23:34	22°♂50'03	-7°-16'-26
direct	-1928 Sep 06 j 16:57	7°♂56'58		minimum elong	-1920 Dec 28 j 23:22	22°♂50'02	7°16'29
				max. Earth dist.	-1919 Jan 01 j 03:54	22°♂55'49	38.51415 AU
conjunction	-1928 Dec 16 j 09:03	9°♂59'26	-3°-38'-52	retrograde	-1919 Apr 11 j 15:42	24°♂48'41	
minimum elong	-1928 Dec 16 j 08:56	9°♂59'26	3°38'55	min. Earth dist.	-1919 Jun 30 j 06:26	23°♂41'43	36.65990 AU
max. Earth dist.	-1928 Dec 19 j 07:31	10°♂05'04	36.47508 AU	opposition	-1919 Jul 03 j 11:46	23°♂37'21	-7°-53'-19
retrograde	-1927 Mar 30 j 01:05	12°♂05'00		direct	-1919 Sep 22 j 01:21	22°♂27'27	
min. Earth dist.	-1927 Jun 17 j 07:20	10°♂55'25	34.60461 AU				
opposition	-1927 Jun 20 j 06:05	10°♂51'17	-4°-7'-20	conjunction	-1919 Dec 30 j 17:32	24°♂21'30	-7°-40'-48
direct	-1927 Sep 08 j 18:14	9°♂38'41		minimum elong	-1919 Dec 30 j 17:20	24°♂21'29	7°40'52
				max. Earth dist.	-1918 Jan 02 j 21:59	24°♂27'14	38.77024 AU
conjunction	-1927 Dec 18 j 06:30	11°♂40'06	-4°-8'-15	retrograde	-1918 Apr 13 j 11:44	26°♂19'22	
minimum elong	-1927 Dec 18 j 06:22	11°♂40'05	4°08'19	min. Earth dist.	-1918 Jul 02 j 02:31	25°♂12'38	36.91732 AU
max. Earth dist.	-1927 Dec 21 j 05:09	11°♂45'42	36.72591 AU	opposition	-1918 Jul 05 j 07:27	25°♂08'19	-8°-18'-29
retrograde	-1926 Mar 31 j 22:54	13°♂44'42		direct	-1918 Sep 23 j 19:24	23°♂58'43	
min. Earth dist.	-1926 Jun 19 j 05:04	12°♂35'29	34.85717 AU				
opposition	-1926 Jun 22 j 05:36	12°♂31'16	-4°-37'-59	conjunction	-1917 Jan 01 j 11:19	25°♂51'57	-8°-4'-32
direct	-1926 Sep 10 j 17:12	11°♂19'00		minimum elong	-1917 Jan 01 j 11:07	25°♂51'56	8°04'35
				max. Earth dist.	-1917 Jan 04 j 16:24	25°♂57'41	39.02468 AU
conjunction	-1926 Dec 20 j 03:26	13°♂19'23	-4°-37'-2	retrograde	-1917 Apr 15 j 06:01	27°♂49'02	
minimum elong	-1926 Dec 20 j 03:17	13°♂19'22	4°37'05	min. Earth dist.	-1917 Jul 03 j 21:39	26°♂42'32	37.17269 AU
max. Earth dist.	-1926 Dec 23 j 03:13	13°♂25'02	36.97769 AU	opposition	-1917 Jul 07 j 02:28	26°♂38'15	-8°-43'00
retrograde	-1925 Apr 02 j 20:33	15°♂23'04		direct	-1917 Sep 25 j 14:32	25°♂28'56	
min. Earth dist.	-1925 Jun 21 j 03:49	14°♂14'07	35.11120 AU				
opposition	-1925 Jun 24 j 04:36	14°♂09'54	-5°-7'-58	conjunction	-1916 Jan 03 j 04:35	27°♂21'21	-8°-27'-40
direct	-1925 Sep 12 j 15:17	12°♂57'57		minimum elong	-1916 Jan 03 j 04:22	27°♂21'20	8°27'44
				max. Earth dist.	-1916 Jan 06 j 08:44	27°♂26'59	39.27697 AU
conjunction	-1925 Dec 21 j 23:59	14°♂57'21	-5°-5'-11	retrograde	-1916 Apr 16 j 00:38	29°♂17'40	
minimum elong	-1925 Dec 21 j 23:49	14°♂57'20	5°05'15	min. Earth dist.	-1916 Jul 04 j 15:49	28°♂11'25	37.42605 AU
max. Earth dist.	-1925 Dec 25 j 01:05	15°♂03'04	37.23108 AU	opposition	-1916 Jul 07 j 21:15	28°♂07'08	-9°-6'-50
retrograde	-1924 Apr 03 j 17:35	17°♂00'07		direct	-1916 Sep 26 j 08:27	26°♂58'04	
min. Earth dist.	-1924 Jun 22 j 01:02	15°♂51'31	35.36683 AU				
opposition	-1924 Jun 25 j 03:02	15°♂47'15	-5°-37'-15	conjunction	-1915 Jan 03 j 21:29	28°♂49'40	-8°-50'-11
direct	-1924 Sep 13 j 14:26	14°♂35'38		minimum elong	-1915 Jan 03 j 21:16	28°♂49'39	8°50'14
				max. Earth dist.	-1915 Jan 07 j 02:44	28°♂55'21	39.52716 AU
conjunction	-1924 Dec 22 j 19:48	16°♂34'05	-5°-32'-43		-1915 Feb 15 j 19:14	0°♂	
minimum elong	-1924 Dec 22 j 19:38	16°♂34'04	5°32'45	retrograde	-1915 Apr 17 j 14:19	0°♂45'13	
max. Earth dist.	-1924 Dec 25 j 21:09	16°♂39'46	37.48595 AU		-1915 Jun 20 j 07:53	30°♂♂	
retrograde	-1923 Apr 05 j 15:33	18°♂35'59		min. Earth dist.	-1915 Jul 06 j 11:06	29°♂39'08	37.67734 AU
min. Earth dist.	-1923 Jun 23 j 21:48	17°♂27'43	35.62415 AU	opposition	-1915 Jul 09 j 15:34	29°♂34'54	-9°-30'-2
opposition	-1923 Jun 27 j 01:04	17°♂23'25	-6°-5'-51	direct	-1915 Sep 28 j 05:39	28°♂26'06	
direct	-1923 Sep 15 j 11:34	16°♂12'08			-1915 Dec 26 j 21:59	0°♂	
conjunction	-1923 Dec 24 j 15:28	18°♂09'40	-5°-59'-36	conjunction	-1914 Jan 05 j 13:59	0°♂16'53	-9°-12'-5
minimum elong	-1923 Dec 24 j 15:18	18°♂09'39	5°59'39	minimum elong	-1914 Jan 05 j 13:46	0°♂16'52	9°12'09
max. Earth dist.	-1923 Dec 27 j 18:38	18°♂15'27	37.74224 AU	max. Earth dist.	-1914 Jan 08 j 18:26	0°♂22'29	39.77555 AU
retrograde	-1922 Apr 07 j 09:11	20°♂10'42		retrograde	-1914 Apr 19 j 05:18	2°♂11'39	
min. Earth dist.	-1922 Jun 25 j 19:10	19°♂02'45	35.88263 AU	min. Earth dist.	-1914 Jul 08 j 03:38	1°♂05'51	37.92714 AU
opposition	-1922 Jun 28 j 22:21	18°♂58'27	-6°-33'-45	opposition	-1914 Jul 11 j 09:07	1°♂01'34	-9°-52'-34
direct	-1922 Sep 17 j 10:27	17°♂47'32			-1914 Sep 06 j 19:47	30°♂♂	
				direct	-1914 Sep 30 j 00:50	29°♂53'00	



## Planetary Phenomena of Pluto from -2400 through -1900 (UT), Astrodienst AG 7-Dez-2017 14:42, page 31

Attention, astronomical year style is used: The year -1914 in astronomical counting style is the year 1915 BCE in historical counting style.

	-1914 Oct 22 j 18:31	0°♅			minimum elong	-1905 Jan 18 j 03:04	12°♅41'22	12°02'07
					max. Earth dist.	-1905 Jan 21 j 09:19	12°♅46'47	41.96689 AU
conjunction	-1913 Jan 07 j 06:03	1°♅43'01	-9°-33'-23		retrograde	-1905 May 01 j 20:34	14°♅30'25	
minimum elong	-1913 Jan 07 j 05:51	1°♅43'00	9°33'26		min. Earth dist.	-1905 Jul 21 j 03:11	13°♅26'40	40.13109 AU
max. Earth dist.	-1913 Jan 10 j 11:18	1°♅48'38	40.02258 AU		opposition	-1905 Jul 24 j 07:37	13°♅22'36	-12°-46'-26
retrograde	-1913 Apr 20 j 21:08	3°♅37'04			direct	-1905 Oct 12 j 22:17	12°♅16'25	
min. Earth dist.	-1913 Jul 09 j 21:43	2°♅31'25	38.17598 AU					
opposition	-1913 Jul 13 j 02:32	2°♅27'11	-10°-14'-27		conjunction	-1904 Jan 19 j 16:36	14°♅00'35	-12°-18'-6
direct	-1913 Oct 01 j 18:22	1°♅18'52			minimum elong	-1904 Jan 19 j 16:24	14°♅00'34	12°18'08
					max. Earth dist.	-1904 Jan 22 j 21:05	14°♅05'51	42.19986 AU
conjunction	-1912 Jan 08 j 21:41	3°♅08'07	-9°-54'-4		retrograde	-1904 May 02 j 11:43	15°♅49'01	
minimum elong	-1912 Jan 08 j 21:28	3°♅08'06	9°54'08		min. Earth dist.	-1904 Jul 21 j 17:30	14°♅45'29	40.36435 AU
max. Earth dist.	-1912 Jan 12 j 03:20	3°♅13'43	40.26896 AU		opposition	-1904 Jul 24 j 21:56	14°♅41'26	-13°-2'-46
retrograde	-1912 Apr 21 j 12:37	5°♅01'27			direct	-1904 Oct 13 j 11:06	13°♅35'28	
min. Earth dist.	-1912 Jul 10 j 13:42	3°♅56'04	38.42421 AU					
opposition	-1912 Jul 13 j 19:23	3°♅51'49	-10°-35'-40		conjunction	-1903 Jan 20 j 05:55	15°♅19'03	-12°-33'-37
direct	-1912 Oct 02 j 11:25	2°♅43'44			minimum elong	-1903 Jan 20 j 05:44	15°♅19'02	12°33'41
					max. Earth dist.	-1903 Jan 23 j 10:58	15°♅24'20	42.42917 AU
conjunction	-1911 Jan 09 j 12:58	4°♅32'16	-10°-14'-8		retrograde	-1903 May 03 j 23:28	17°♅06'55	
minimum elong	-1911 Jan 09 j 12:46	4°♅32'16	10°14'11		min. Earth dist.	-1903 Jul 23 j 08:58	16°♅03'28	40.59392 AU
max. Earth dist.	-1911 Jan 12 j 18:22	4°♅37'49	40.51482 AU		opposition	-1903 Jul 26 j 11:47	15°♅59'31	-13°-18'-33
retrograde	-1911 Apr 23 j 06:20	6°♅24'55			direct	-1903 Oct 15 j 02:16	14°♅53'45	
min. Earth dist.	-1911 Jul 12 j 06:00	5°♅19'46	38.67216 AU					
opposition	-1911 Jul 15 j 11:54	5°♅15'32	-10°-56'-13		conjunction	-1902 Jan 21 j 18:52	16°♅36'45	-12°-48'-38
direct	-1911 Oct 04 j 01:46	4°♅07'43			minimum elong	-1902 Jan 21 j 18:40	16°♅36'44	12°48'40
					max. Earth dist.	-1902 Jan 24 j 22:40	16°♅41'55	42.65512 AU
conjunction	-1910 Jan 11 j 04:07	5°♅55'34	-10°-33'-35		retrograde	-1902 May 05 j 09:45	18°♅24'02	
minimum elong	-1910 Jan 11 j 03:54	5°♅55'33	10°33'38		min. Earth dist.	-1902 Jul 24 j 21:50	17°♅20'48	40.82030 AU
max. Earth dist.	-1910 Jan 14 j 10:43	6°♅01'10	40.76034 AU		opposition	-1902 Jul 28 j 01:15	17°♅16'49	-13°-33'-47
retrograde	-1910 Apr 24 j 20:55	7°♅47'33			direct	-1902 Oct 16 j 17:58	16°♅11'15	
min. Earth dist.	-1910 Jul 13 j 22:30	6°♅42'38	38.91943 AU					
opposition	-1910 Jul 17 j 04:00	6°♅38'25	-11°-16'-7		conjunction	-1901 Jan 23 j 07:22	17°♅53'39	-13°-3'-7
direct	-1910 Oct 05 j 18:35	5°♅30'53			minimum elong	-1901 Jan 23 j 07:11	17°♅53'38	13°03'11
					max. Earth dist.	-1901 Jan 26 j 11:12	17°♅58'48	42.87804 AU
conjunction	-1909 Jan 12 j 18:44	7°♅18'05	-10°-52'-26		retrograde	-1901 May 06 j 21:47	19°♅40'23	
minimum elong	-1909 Jan 12 j 18:32	7°♅18'04	10°52'29		min. Earth dist.	-1901 Jul 26 j 12:17	18°♅37'15	41.04408 AU
max. Earth dist.	-1909 Jan 16 j 00:32	7°♅23'35	41.00510 AU		opposition	-1901 Jul 29 j 14:30	18°♅33'21	-13°-48'-29
retrograde	-1909 Apr 26 j 11:39	9°♅09'26			direct	-1901 Oct 18 j 08:22	17°♅27'58	
min. Earth dist.	-1909 Jul 15 j 13:10	8°♅04'49	39.16587 AU					
opposition	-1909 Jul 18 j 19:43	8°♅00'34	-11°-35'-24		conjunction	-1900 Jan 24 j 19:47	19°♅09'48	-13°-17'-4
direct	-1909 Oct 07 j 09:57	6°♅53'19			minimum elong	-1900 Jan 24 j 19:37	19°♅09'47	13°17'07
					max. Earth dist.	-1900 Jan 27 j 23:40	19°♅14'56	43.09882 AU
conjunction	-1908 Jan 14 j 09:12	8°♅39'52	-11°-10'-41		retrograde	-1900 May 07 j 10:36	20°♅55'58	
minimum elong	-1908 Jan 14 j 08:59	8°♅39'52	11°10'44		min. Earth dist.	-1900 Jul 27 j 00:58	19°♅53'02	41.26573 AU
max. Earth dist.	-1908 Jan 17 j 15:58	8°♅45'26	41.24874 AU		opposition	-1900 Jul 30 j 03:21	19°♅49'08	-14°-2'-37
retrograde	-1908 Apr 27 j 00:01	10°♅30'38			direct	-1900 Oct 18 j 20:51	18°♅43'56	
min. Earth dist.	-1908 Jul 16 j 05:50	9°♅26'13	39.41093 AU					
opposition	-1908 Jul 19 j 11:16	9°♅22'02	-11°-54'-2					
direct	-1908 Oct 08 j 03:38	8°♅15'04						
conjunction	-1907 Jan 14 j 23:23	10°♅01'01	-11°-28'-22					
minimum elong	-1907 Jan 14 j 23:11	10°♅01'00	11°28'25					
max. Earth dist.	-1907 Jan 18 j 05:37	10°♅06'30	41.49079 AU					
retrograde	-1907 Apr 28 j 14:29	11°♅51'12						
min. Earth dist.	-1907 Jul 17 j 20:22	10°♅47'03	39.65392 AU					
opposition	-1907 Jul 21 j 02:21	10°♅42'52	-12°-12'-5					
direct	-1907 Oct 09 j 18:53	9°♅36'10						
conjunction	-1906 Jan 16 j 13:23	11°♅21'31	-11°-45'-29					
minimum elong	-1906 Jan 16 j 13:10	11°♅21'30	11°45'32					
max. Earth dist.	-1906 Jan 19 j 19:14	11°♅26'57	41.73032 AU					
retrograde	-1906 Apr 30 j 06:20	13°♅11'08						
min. Earth dist.	-1906 Jul 19 j 12:10	12°♅07'10	39.89424 AU					
opposition	-1906 Jul 22 j 17:07	12°♅03'04	-12°-29'-32					
direct	-1906 Oct 11 j 07:47	10°♅56'38						
conjunction	-1905 Jan 18 j 03:16	12°♅41'23	-12°-2'-3					



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 1

Attention, astronomical year style is used: The year -1900 in astronomical counting style is the year 1901 BCE in historical counting style.

conjunction	-1900 Jan 24 j 19:47	19° $\overline{30}$ 9'48	-13°-17'-4	minimum elong	-1892 Feb 03 j 14:40	28° $\overline{35}$ 7'03	14°50'48
minimum elong	-1900 Jan 24 j 19:37	19° $\overline{30}$ 9'47	13°17'07	max. Earth dist.	-1892 Feb 06 j 14:07	29° $\overline{30}$ 1'42	44.78280 AU
max. Earth dist.	-1900 Jan 27 j 23:40	19° $\overline{31}$ 4'56	43.09882 AU		-1892 Mar 18 j 03:00	0° $\approx$	
retrograde	-1900 May 07 j 10:36	20° $\overline{35}$ 5'58		retrograde	-1892 May 17 j 07:13	0° $\approx$ 39'24	
min. Earth dist.	-1900 Jul 27 j 00:58	19° $\overline{35}$ 3'02	41.26573 AU		-1892 Jul 18 j 09:28	30° $\overline{R}$ $\overline{3}$	
opposition	-1900 Jul 30 j 03:21	19° $\overline{34}$ 9'08	-14°-2'-37	min. Earth dist.	-1892 Aug 06 j 03:13	29° $\overline{33}$ 7'45	42.95151 AU
direct	-1900 Oct 18 j 20:51	18° $\overline{34}$ 3'56		opposition	-1892 Aug 09 j 01:09	29° $\overline{33}$ 4'11	-15°-36'-59
				direct	-1892 Oct 28 j 16:49	28° $\overline{33}$ 0'35	
conjunction	-1899 Jan 25 j 07:45	20° $\overline{32}$ 5'13	-13°-30'-31		-1891 Jan 29 j 19:28	0° $\approx$	
minimum elong	-1899 Jan 25 j 07:34	20° $\overline{32}$ 5'13	13°30'35	conjunction	-1891 Feb 04 j 01:24	0° $\approx$ 08'09	-15°00'-26
max. Earth dist.	-1899 Jan 28 j 10:45	20° $\overline{33}$ 0'15	43.31763 AU	minimum elong	-1891 Feb 04 j 01:16	0° $\approx$ 08'08	15°00'28
retrograde	-1899 May 09 j 00:30	22° $\overline{31}$ 0'52		max. Earth dist.	-1891 Feb 07 j 00:34	0° $\approx$ 12'45	44.97692 AU
min. Earth dist.	-1899 Jul 28 j 13:47	21° $\overline{30}$ 8'05	41.48564 AU	retrograde	-1891 May 18 j 15:16	1° $\approx$ 50'02	
opposition	-1899 Jul 31 j 16:02	21° $\overline{30}$ 4'12	-14°-16'-12	min. Earth dist.	-1891 Aug 07 j 15:58	0° $\approx$ 48'27	43.14485 AU
direct	-1899 Oct 20 j 07:45	19° $\overline{35}$ 9'13		opposition	-1891 Aug 10 j 11:56	0° $\approx$ 44'59	-15°-46'-41
conjunction	-1898 Jan 26 j 19:43	21° $\overline{33}$ 9'59	-13°-43'-26		-1891 Sep 20 j 04:48	30° $\overline{R}$ $\overline{3}$	
minimum elong	-1898 Jan 26 j 19:34	21° $\overline{33}$ 9'58	13°43'28	direct	-1891 Oct 30 j 06:04	29° $\overline{34}$ 1'32	
max. Earth dist.	-1898 Jan 29 j 23:34	21° $\overline{34}$ 5'02	43.53472 AU		-1891 Dec 08 j 09:24	0° $\approx$	
retrograde	-1898 May 10 j 11:28	23° $\overline{32}$ 5'05		conjunction	-1890 Feb 05 j 11:52	1° $\approx$ 18'40	-15°-9'-41
min. Earth dist.	-1898 Jul 30 j 02:53	22° $\overline{32}$ 2'27	41.70360 AU	minimum elong	-1890 Feb 05 j 11:46	1° $\approx$ 18'40	15°09'44
opposition	-1898 Aug 02 j 04:13	22° $\overline{31}$ 8'38	-14°-29'-14	max. Earth dist.	-1890 Feb 08 j 09:48	1° $\approx$ 23'11	45.16665 AU
direct	-1898 Oct 21 j 20:28	21° $\overline{31}$ 3'51		retrograde	-1890 May 19 j 23:55	3° $\approx$ 00'07	
conjunction	-1897 Jan 28 j 07:19	22° $\overline{35}$ 4'07	-13°-55'-50	min. Earth dist.	-1890 Aug 09 j 02:13	1° $\approx$ 58'40	43.33391 AU
minimum elong	-1897 Jan 28 j 07:09	22° $\overline{35}$ 4'06	13°55'54	opposition	-1890 Aug 11 j 22:09	1° $\approx$ 55'12	-15°-55'-57
max. Earth dist.	-1897 Jan 31 j 09:52	22° $\overline{35}$ 9'04	43.74998 AU	direct	-1890 Oct 31 j 18:05	0° $\approx$ 51'55	
retrograde	-1897 May 11 j 22:54	24° $\overline{33}$ 8'43		conjunction	-1889 Feb 06 j 21:55	2° $\approx$ 28'37	-15°-18'-31
min. Earth dist.	-1897 Jul 31 j 14:18	23° $\overline{33}$ 6'19	41.91962 AU	minimum elong	-1889 Feb 06 j 21:48	2° $\approx$ 28'36	15°18'33
opposition	-1897 Aug 03 j 16:16	23° $\overline{33}$ 2'29	-14°-41'-45	max. Earth dist.	-1889 Feb 09 j 18:50	2° $\approx$ 33'02	45.35239 AU
direct	-1897 Oct 23 j 08:26	22° $\overline{32}$ 7'54		retrograde	-1889 May 21 j 11:00	4° $\approx$ 09'38	
conjunction	-1896 Jan 29 j 18:35	24° $\overline{30}$ 7'41	-14°-7'-45	min. Earth dist.	-1889 Aug 10 j 13:47	3° $\approx$ 08'15	43.51944 AU
minimum elong	-1896 Jan 29 j 18:26	24° $\overline{30}$ 7'41	14°07'48	opposition	-1889 Aug 13 j 08:26	3° $\approx$ 04'52	-16°-4'-46
max. Earth dist.	-1896 Feb 01 j 21:31	24° $\overline{31}$ 2'39	43.96305 AU	direct	-1889 Nov 02 j 03:50	2° $\approx$ 01'44	
retrograde	-1896 May 12 j 08:46	25° $\overline{35}$ 1'50		conjunction	-1888 Feb 08 j 07:46	3° $\approx$ 38'00	-15°-26'-55
min. Earth dist.	-1896 Aug 01 j 03:46	24° $\overline{34}$ 9'33	42.13323 AU	minimum elong	-1888 Feb 08 j 07:41	3° $\approx$ 38'00	15°26'59
opposition	-1896 Aug 04 j 04:13	24° $\overline{34}$ 5'48	-14°-53'-45	max. Earth dist.	-1888 Feb 11 j 05:03	3° $\approx$ 42'25	45.53498 AU
direct	-1896 Oct 23 j 21:39	23° $\overline{34}$ 1'26		retrograde	-1888 May 21 j 21:30	5° $\approx$ 18'36	
conjunction	-1895 Jan 30 j 05:56	25° $\overline{32}$ 0'45	-14°-19'-11	min. Earth dist.	-1888 Aug 11 j 00:17	4° $\approx$ 17'20	43.70185 AU
minimum elong	-1895 Jan 30 j 05:47	25° $\overline{32}$ 0'44	14°19'14	opposition	-1888 Aug 13 j 18:21	4° $\approx$ 13'59	-16°-13'-8
max. Earth dist.	-1895 Feb 02 j 08:23	25° $\overline{32}$ 5'40	44.17359 AU	direct	-1888 Nov 02 j 13:17	3° $\approx$ 10'59	
retrograde	-1895 May 13 j 19:13	27° $\overline{30}$ 4'26		conjunction	-1887 Feb 08 j 17:27	4° $\approx$ 46'52	-15°-34'-54
min. Earth dist.	-1895 Aug 02 j 15:09	26° $\overline{30}$ 2'22	42.34383 AU	minimum elong	-1887 Feb 08 j 17:21	4° $\approx$ 46'51	15°34'56
opposition	-1895 Aug 05 j 15:38	25° $\overline{35}$ 8'37	-15°-5'-15	max. Earth dist.	-1887 Feb 11 j 13:05	4° $\approx$ 51'10	45.71479 AU
direct	-1895 Oct 25 j 10:18	24° $\overline{35}$ 4'28		retrograde	-1887 May 23 j 09:25	6° $\approx$ 27'02	
conjunction	-1894 Jan 31 j 17:00	26° $\overline{33}$ 3'20	-14°-30'-9	min. Earth dist.	-1887 Aug 12 j 09:53	5° $\approx$ 25'55	43.88175 AU
minimum elong	-1894 Jan 31 j 16:52	26° $\overline{33}$ 3'19	14°30'12	opposition	-1887 Aug 15 j 03:58	5° $\approx$ 22'35	-16°-21'-4
max. Earth dist.	-1894 Feb 03 j 18:12	26° $\overline{33}$ 8'08	44.38075 AU	direct	-1887 Nov 03 j 20:21	4° $\approx$ 19'44	
retrograde	-1894 May 15 j 09:13	28° $\overline{31}$ 6'34		conjunction	-1886 Feb 10 j 03:03	5° $\approx$ 55'15	-15°-42'-27
min. Earth dist.	-1894 Aug 04 j 03:38	27° $\overline{31}$ 4'38	42.55085 AU	minimum elong	-1886 Feb 10 j 02:58	5° $\approx$ 55'14	15°42'30
opposition	-1894 Aug 07 j 03:03	27° $\overline{31}$ 0'58	-15°-16'-17	max. Earth dist.	-1886 Feb 12 j 23:06	5° $\approx$ 59'33	45.89213 AU
direct	-1894 Oct 26 j 19:22	26° $\overline{30}$ 7'00		retrograde	-1886 May 24 j 17:18	7° $\approx$ 35'02	
conjunction	-1893 Feb 02 j 04:00	27° $\overline{34}$ 5'27	-14°-40'-40	min. Earth dist.	-1886 Aug 13 j 20:59	6° $\approx$ 34'00	44.05910 AU
minimum elong	-1893 Feb 02 j 03:51	27° $\overline{34}$ 5'26	14°40'43	opposition	-1886 Aug 16 j 13:31	6° $\approx$ 30'45	-16°-28'-32
max. Earth dist.	-1893 Feb 05 j 05:16	27° $\overline{35}$ 0'13	44.58399 AU	direct	-1886 Nov 05 j 06:37	5° $\approx$ 28'03	
retrograde	-1893 May 16 j 20:12	29° $\overline{32}$ 8'14		conjunction	-1885 Feb 11 j 12:18	7° $\approx$ 03'11	-15°-49'-34
min. Earth dist.	-1893 Aug 05 j 16:05	28° $\overline{32}$ 6'25	42.75345 AU	minimum elong	-1885 Feb 11 j 12:14	7° $\approx$ 03'11	15°49'37
opposition	-1893 Aug 08 j 14:11	28° $\overline{32}$ 2'50	-15°-26'-51	max. Earth dist.	-1885 Feb 14 j 07:23	7° $\approx$ 07'26	46.06714 AU
direct	-1893 Oct 28 j 06:28	27° $\overline{31}$ 9'04		retrograde	-1885 May 25 j 23:31	8° $\approx$ 42'36	
conjunction	-1892 Feb 03 j 14:47	28° $\overline{35}$ 7'04	-14°-50'-45	min. Earth dist.	-1885 Aug 15 j 05:45	7° $\approx$ 41'46	44.23396 AU



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 2

Attention, astronomical year style is used: The year -1885 in astronomical counting style is the year 1886 BCE in historical counting style.

opposition	-1885 Aug 17 j 22:46	7° $\approx$ 38'29	-16°-35'-35	retrograde	-1877 Jun 03 j 22:25	17° $\approx$ 30'10	
direct	-1885 Nov 06 j 18:32	6° $\approx$ 35'58		min. Earth dist.	-1877 Aug 24 j 10:20	16° $\approx$ 30'00	45.49570 AU
				opposition	-1877 Aug 26 j 18:59	16° $\approx$ 27'12	-17°-17'-56
conjunction	-1884 Feb 12 j 21:26	8° $\approx$ 10'45	-15°-56'-17	direct	-1877 Nov 15 j 15:12	15° $\approx$ 25'44	
minimum elong	-1884 Feb 12 j 21:21	8° $\approx$ 10'45	15°56'20				
max. Earth dist.	-1884 Feb 15 j 15:51	8° $\approx$ 14'56	46.23955 AU	conjunction	-1876 Feb 21 j 18:40	16° $\approx$ 57'54	-16°-36'-38
retrograde	-1884 May 26 j 09:03	9° $\approx$ 49'49		minimum elong	-1876 Feb 21 j 18:38	16° $\approx$ 57'54	16°36'41
min. Earth dist.	-1884 Aug 15 j 16:23	8° $\approx$ 49'04	44.40616 AU	max. Earth dist.	-1876 Feb 24 j 05:57	17° $\approx$ 01'31	47.47784 AU
opposition	-1884 Aug 18 j 07:59	8° $\approx$ 45'52	-16°-42'-12	retrograde	-1876 Jun 04 j 06:16	18° $\approx$ 34'11	
direct	-1884 Nov 07 j 04:26	7° $\approx$ 43'31		min. Earth dist.	-1876 Aug 24 j 19:32	17° $\approx$ 34'03	45.63452 AU
				opposition	-1876 Aug 27 j 02:42	17° $\approx$ 31'20	-17°-21'-35
conjunction	-1883 Feb 13 j 06:35	9° $\approx$ 17'58	-16°-2'-35	direct	-1876 Nov 15 j 23:04	16° $\approx$ 29'57	
minimum elong	-1883 Feb 13 j 06:32	9° $\approx$ 17'58	16°02'38				
max. Earth dist.	-1883 Feb 16 j 00:58	9° $\approx$ 22'08	46.40918 AU	conjunction	-1875 Feb 22 j 02:37	18° $\approx$ 01'49	-16°-40'-6
retrograde	-1883 May 27 j 18:32	10° $\approx$ 56'42		minimum elong	-1875 Feb 22 j 02:38	18° $\approx$ 01'49	16°40'09
min. Earth dist.	-1883 Aug 17 j 01:55	9° $\approx$ 56'05	44.57503 AU	max. Earth dist.	-1875 Feb 24 j 12:28	18° $\approx$ 05'20	47.61463 AU
opposition	-1883 Aug 19 j 16:53	9° $\approx$ 52'55	-16°-48'-25	retrograde	-1875 Jun 05 j 12:38	19° $\approx$ 37'47	
direct	-1883 Nov 08 j 13:17	8° $\approx$ 50'44		min. Earth dist.	-1875 Aug 26 j 02:51	18° $\approx$ 37'46	45.77044 AU
				opposition	-1875 Aug 28 j 10:13	18° $\approx$ 35'02	-17°-24'-53
conjunction	-1882 Feb 14 j 15:31	10° $\approx$ 24'51	-16°-8'-30	direct	-1875 Nov 17 j 07:01	17° $\approx$ 33'46	
minimum elong	-1882 Feb 14 j 15:27	10° $\approx$ 24'51	16°08'34				
max. Earth dist.	-1882 Feb 17 j 08:02	10° $\approx$ 28'53	46.57524 AU	conjunction	-1874 Feb 23 j 10:27	19° $\approx$ 05'21	-16°-43'-12
retrograde	-1882 May 29 j 06:00	12° $\approx$ 03'14		minimum elong	-1874 Feb 23 j 10:27	19° $\approx$ 05'21	16°43'14
min. Earth dist.	-1882 Aug 18 j 11:23	11° $\approx$ 02'45	44.74015 AU	max. Earth dist.	-1874 Feb 25 j 19:43	19° $\approx$ 08'49	47.74853 AU
opposition	-1882 Aug 21 j 01:34	10° $\approx$ 59'39	-16°-54'-14	retrograde	-1874 Jun 06 j 18:26	20° $\approx$ 41'01	
direct	-1882 Nov 09 j 19:37	9° $\approx$ 57'37		min. Earth dist.	-1874 Aug 27 j 11:51	19° $\approx$ 41'02	45.90361 AU
				opposition	-1874 Aug 29 j 17:36	19° $\approx$ 38'24	-17°-27'-48
conjunction	-1881 Feb 16 j 00:28	11° $\approx$ 31'25	-16°-14'-4	direct	-1874 Nov 18 j 16:18	18° $\approx$ 37'14	
minimum elong	-1881 Feb 16 j 00:26	11° $\approx$ 31'25	16°14'06				
max. Earth dist.	-1881 Feb 18 j 16:59	11° $\approx$ 35'25	46.73719 AU	conjunction	-1873 Feb 24 j 18:12	20° $\approx$ 08'33	-16°-45'-57
retrograde	-1881 May 30 j 14:12	13° $\approx$ 09'27		minimum elong	-1873 Feb 24 j 18:13	20° $\approx$ 08'33	16°46'00
min. Earth dist.	-1881 Aug 19 j 21:54	12° $\approx$ 09'01	44.90074 AU	max. Earth dist.	-1873 Feb 27 j 03:11	20° $\approx$ 12'00	47.87996 AU
opposition	-1881 Aug 22 j 10:16	12° $\approx$ 06'01	-16°-59'-41	retrograde	-1873 Jun 08 j 01:05	21° $\approx$ 43'57	
direct	-1881 Nov 11 j 04:20	11° $\approx$ 04'07		min. Earth dist.	-1873 Aug 28 j 19:11	20° $\approx$ 44'06	46.03406 AU
				opposition	-1873 Aug 31 j 00:50	20° $\approx$ 41'28	-17°-30'-21
conjunction	-1880 Feb 17 j 09:09	12° $\approx$ 37'36	-16°-19'-16	direct	-1873 Nov 20 j 00:54	19° $\approx$ 40'26	
minimum elong	-1880 Feb 17 j 09:06	12° $\approx$ 37'36	16°19'18				
max. Earth dist.	-1880 Feb 19 j 23:47	12° $\approx$ 41'29	46.89456 AU	conjunction	-1872 Feb 26 j 01:36	21° $\approx$ 11'30	-16°-48'-21
retrograde	-1880 May 30 j 21:44	14° $\approx$ 15'17		minimum elong	-1872 Feb 26 j 01:37	21° $\approx$ 11'30	16°48'22
min. Earth dist.	-1880 Aug 20 j 06:33	13° $\approx$ 14'59	45.05648 AU	max. Earth dist.	-1872 Feb 28 j 09:02	21° $\approx$ 14'51	48.00863 AU
opposition	-1880 Aug 22 j 18:44	13° $\approx$ 12'00	-17°-4'-46	retrograde	-1872 Jun 08 j 10:54	22° $\approx$ 46'38	
direct	-1880 Nov 11 j 13:13	12° $\approx$ 10'13		min. Earth dist.	-1872 Aug 29 j 03:20	21° $\approx$ 46'53	46.16171 AU
				opposition	-1872 Aug 31 j 08:05	21° $\approx$ 44'18	-17°-32'-32
conjunction	-1879 Feb 17 j 17:48	13° $\approx$ 43'23	-16°-24'-7	direct	-1872 Nov 20 j 06:15	20° $\approx$ 43'25	
minimum elong	-1879 Feb 17 j 17:47	13° $\approx$ 43'23	16°24'10				
max. Earth dist.	-1879 Feb 20 j 07:22	13° $\approx$ 47'11	47.04693 AU	conjunction	-1871 Feb 26 j 09:14	22° $\approx$ 14'15	-16°-50'-24
	-1879 Apr 18 j 07:44	15° $\approx$		minimum elong	-1871 Feb 26 j 09:15	22° $\approx$ 14'16	16°50'27
retrograde	-1879 Jun 01 j 04:32	15° $\approx$ 20'43		max. Earth dist.	-1871 Feb 28 j 16:52	22° $\approx$ 17'36	48.13427 AU
	-1879 Jul 15 j 20:57	15° $\approx$		retrograde	-1871 Jun 09 j 19:08	23° $\approx$ 49'08	
min. Earth dist.	-1879 Aug 21 j 16:59	14° $\approx$ 20'25	45.20729 AU	min. Earth dist.	-1871 Aug 30 j 11:46	22° $\approx$ 49'28	46.28590 AU
opposition	-1879 Aug 24 j 03:01	14° $\approx$ 17'33	-17°-9'-30	opposition	-1871 Sep 01 j 15:00	22° $\approx$ 46'58	-17°-34'-23
direct	-1879 Nov 12 j 23:35	13° $\approx$ 15'53		direct	-1871 Nov 21 j 12:09	21° $\approx$ 46'13	
conjunction	-1878 Feb 19 j 02:24	14° $\approx$ 48'42	-16°-28'-38	conjunction	-1870 Feb 27 j 16:43	23° $\approx$ 16'51	-16°-52'-8
minimum elong	-1878 Feb 19 j 02:22	14° $\approx$ 48'42	16°28'41	minimum elong	-1870 Feb 27 j 16:45	23° $\approx$ 16'51	16°52'10
max. Earth dist.	-1878 Feb 21 j 15:22	14° $\approx$ 52'27	47.19465 AU	max. Earth dist.	-1870 Mar 01 j 22:24	23° $\approx$ 20'04	48.25635 AU
	-1878 Feb 26 j 18:16	15° $\approx$		retrograde	-1870 Jun 11 j 03:26	24° $\approx$ 51'29	
retrograde	-1878 Jun 02 j 11:34	16° $\approx$ 25'41		min. Earth dist.	-1870 Aug 31 j 18:52	23° $\approx$ 51'57	46.40618 AU
min. Earth dist.	-1878 Aug 23 j 01:35	15° $\approx$ 25'28	45.35344 AU	opposition	-1870 Sep 02 j 21:53	23° $\approx$ 49'28	-17°-35'-55
opposition	-1878 Aug 25 j 11:02	15° $\approx$ 22'37	-17°-13'-54	direct	-1870 Nov 22 j 17:38	22° $\approx$ 48'51	
	-1878 Sep 13 j 22:25	15° $\approx$					
direct	-1878 Nov 14 j 09:37	14° $\approx$ 21'03		conjunction	-1869 Mar 01 j 00:00	24° $\approx$ 19'17	-16°-53'-34
	-1877 Jan 12 j 17:41	15° $\approx$		minimum elong	-1869 Mar 01 j 00:02	24° $\approx$ 19'17	16°53'36
				max. Earth dist.	-1869 Mar 03 j 04:52	24° $\approx$ 22'27	48.37404 AU
conjunction	-1877 Feb 20 j 10:28	15° $\approx$ 53'32	-16°-32'-49	retrograde	-1869 Jun 12 j 08:48	25° $\approx$ 53'41	
minimum elong	-1877 Feb 20 j 10:28	15° $\approx$ 53'32	16°32'52	min. Earth dist.	-1869 Sep 02 j 04:08	24° $\approx$ 54'11	46.52179 AU
max. Earth dist.	-1877 Feb 22 j 21:33	15° $\approx$ 57'09	47.33803 AU	opposition	-1869 Sep 04 j 04:50	24° $\approx$ 51'49	-17°-37'-8



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 3

Attention, astronomical year style is used: The year -1869 in astronomical counting style is the year 1870 BCE in historical counting style.

direct	-1869 Nov 24 j 01:57	23° $\approx$ 51'19		min. Earth dist.	-1861 Sep 10 j 14:35	3° $\times$ 02'34	47.28084 AU
				opposition	-1861 Sep 12 j 06:52	3° $\times$ 00'38	-17°-36'-13
conjunction	-1868 Mar 01 j 07:29	25° $\approx$ 21'32	-16°-54'-41	direct	-1861 Dec 02 j 08:39	2° $\times$ 00'43	
minimum elong	-1868 Mar 01 j 07:33	25° $\approx$ 21'32	16°54'43				
max. Earth dist.	-1868 Mar 03 j 11:21	25° $\approx$ 24'38	48.48698 AU	conjunction	-1860 Mar 09 j 14:19	3° $\times$ 29'16	-16°-53'-19
retrograde	-1868 Jun 12 j 13:44	26° $\approx$ 55'43		minimum elong	-1860 Mar 09 j 14:25	3° $\times$ 29'17	16°53'21
min. Earth dist.	-1868 Sep 02 j 11:20	25° $\approx$ 56'18	46.63223 AU	max. Earth dist.	-1860 Mar 11 j 08:46	3° $\times$ 31'45	49.23055 AU
opposition	-1868 Sep 04 j 11:28	25° $\approx$ 53'57	-17°-38'-3	retrograde	-1860 Jun 20 j 21:27	5° $\times$ 01'34	
direct	-1868 Nov 24 j 11:31	24° $\approx$ 53'34		min. Earth dist.	-1860 Sep 10 j 20:34	4° $\times$ 02'26	47.36005 AU
				opposition	-1860 Sep 12 j 12:34	4° $\times$ 00'31	-17°-34'-43
conjunction	-1867 Mar 02 j 14:45	26° $\approx$ 23'33	-16°-55'-32	direct	-1860 Dec 02 j 11:32	3° $\times$ 00'41	
minimum elong	-1867 Mar 02 j 14:47	26° $\approx$ 23'34	16°55'35				
max. Earth dist.	-1867 Mar 04 j 16:15	26° $\approx$ 26'31	48.59463 AU	conjunction	-1859 Mar 10 j 20:52	4° $\times$ 29'05	-16°-51'-48
retrograde	-1867 Jun 13 j 23:30	27° $\approx$ 57'30		minimum elong	-1859 Mar 10 j 20:58	4° $\times$ 29'06	16°51'49
min. Earth dist.	-1867 Sep 03 j 19:38	26° $\approx$ 58'06	46.73743 AU	max. Earth dist.	-1859 Mar 12 j 14:45	4° $\times$ 31'32	49.30827 AU
opposition	-1867 Sep 05 j 18:10	26° $\approx$ 55'51	-17°-38'-42	retrograde	-1859 Jun 22 j 03:15	6° $\times$ 01'12	
direct	-1867 Nov 25 j 16:52	25° $\approx$ 55'32		min. Earth dist.	-1859 Sep 12 j 04:25	5° $\times$ 02'04	47.43567 AU
				opposition	-1859 Sep 13 j 18:21	5° $\times$ 00'15	-17°-32'-55
conjunction	-1866 Mar 03 j 22:01	27° $\approx$ 25'19	-16°-56'-7	direct	-1859 Dec 03 j 17:10	4° $\times$ 00'30	
minimum elong	-1866 Mar 03 j 22:05	27° $\approx$ 25'19	16°56'09				
max. Earth dist.	-1866 Mar 05 j 23:15	27° $\approx$ 28'14	48.69711 AU	conjunction	-1858 Mar 12 j 03:22	5° $\times$ 28'46	-16°-50'00
retrograde	-1866 Jun 15 j 07:08	28° $\approx$ 59'00		minimum elong	-1858 Mar 12 j 03:28	5° $\times$ 28'46	16°50'02
min. Earth dist.	-1866 Sep 05 j 03:39	27° $\approx$ 59'37	46.83747 AU	max. Earth dist.	-1858 Mar 13 j 20:18	5° $\times$ 31'09	49.38230 AU
opposition	-1866 Sep 07 j 00:33	27° $\approx$ 57'26	-17°-39'-3	retrograde	-1858 Jun 23 j 06:16	7° $\times$ 00'42	
direct	-1866 Nov 26 j 22:52	26° $\approx$ 57'12		min. Earth dist.	-1858 Sep 13 j 10:15	6° $\times$ 01'39	47.50717 AU
				opposition	-1858 Sep 14 j 23:49	5° $\times$ 59'51	-17°-30'-50
conjunction	-1865 Mar 05 j 04:58	28° $\approx$ 26'45	-16°-56'-24	direct	-1858 Dec 05 j 01:37	5° $\times$ 00'12	
minimum elong	-1865 Mar 05 j 05:01	28° $\approx$ 26'45	16°56'26				
max. Earth dist.	-1865 Mar 07 j 04:09	28° $\approx$ 29'32	48.79492 AU	conjunction	-1857 Mar 13 j 09:45	6° $\times$ 28'19	-16°-47'-56
	-1865 Jun 12 j 14:03	0° $\times$		minimum elong	-1857 Mar 13 j 09:51	6° $\times$ 28'19	16°47'57
retrograde	-1865 Jun 16 j 14:21	0° $\times$ 00'10		max. Earth dist.	-1857 Mar 15 j 00:32	6° $\times$ 30'34	49.45189 AU
	-1865 Jun 20 j 12:50	30° $\times$		retrograde	-1857 Jun 24 j 13:01	8° $\times$ 00'06	
min. Earth dist.	-1865 Sep 06 j 10:14	29° $\approx$ 00'51	46.93318 AU	min. Earth dist.	-1857 Sep 14 j 17:41	7° $\times$ 01'03	47.57404 AU
opposition	-1865 Sep 08 j 06:50	28° $\approx$ 58'42	-17°-39'-6	opposition	-1857 Sep 16 j 05:27	6° $\times$ 59'21	-17°-28'-29
direct	-1865 Nov 28 j 03:50	27° $\approx$ 58'31		direct	-1857 Dec 06 j 07:38	5° $\times$ 59'46	
conjunction	-1864 Mar 05 j 11:44	29° $\approx$ 27'51	-16°-56'-23	conjunction	-1856 Mar 13 j 16:13	7° $\times$ 27'45	-16°-45'-36
minimum elong	-1864 Mar 05 j 11:49	29° $\approx$ 27'51	16°56'25	minimum elong	-1856 Mar 13 j 16:19	7° $\times$ 27'45	16°45'38
max. Earth dist.	-1864 Mar 07 j 10:18	29° $\approx$ 30'36	48.88856 AU	max. Earth dist.	-1856 Mar 15 j 06:36	7° $\times$ 29'58	49.51654 AU
	-1864 Mar 28 j 15:23	0° $\times$		retrograde	-1856 Jun 24 j 19:41	8° $\times$ 59'22	
retrograde	-1864 Jun 16 j 18:26	1° $\times$ 01'01		min. Earth dist.	-1856 Sep 15 j 00:49	8° $\times$ 00'20	47.63551 AU
min. Earth dist.	-1864 Sep 06 j 18:28	0° $\times$ 01'40	47.02496 AU	opposition	-1856 Sep 16 j 11:00	7° $\times$ 58'42	-17°-25'-53
opposition	-1864 Sep 08 j 13:06	29° $\approx$ 59'36	-17°-38'-51	direct	-1856 Dec 06 j 13:14	6° $\times$ 59'10	
	-1864 Sep 08 j 04:59	30° $\times$					
direct	-1864 Nov 28 j 12:12	28° $\approx$ 59'30		conjunction	-1855 Mar 14 j 22:38	8° $\times$ 27'01	-16°-43'-2
	-1863 Feb 14 j 04:46	0° $\times$		minimum elong	-1855 Mar 14 j 22:46	8° $\times$ 27'01	16°43'03
				max. Earth dist.	-1855 Mar 16 j 10:32	8° $\times$ 29'06	49.57581 AU
conjunction	-1863 Mar 06 j 18:39	0° $\times$ 28'37	-16°-56'-4	retrograde	-1855 Jun 26 j 03:39	9° $\times$ 58'27	
minimum elong	-1863 Mar 06 j 18:43	0° $\times$ 28'37	16°56'06	min. Earth dist.	-1855 Sep 16 j 06:56	8° $\times$ 59'27	47.69159 AU
max. Earth dist.	-1863 Mar 08 j 16:26	0° $\times$ 31'19	48.97870 AU	opposition	-1855 Sep 17 j 16:18	8° $\times$ 57'52	-17°-23'-2
retrograde	-1863 Jun 17 j 21:56	2° $\times$ 01'32		direct	-1855 Dec 07 j 16:43	7° $\times$ 58'23	
min. Earth dist.	-1863 Sep 08 j 00:27	1° $\times$ 02'16	47.11331 AU				
opposition	-1863 Sep 09 j 18:57	1° $\times$ 00'13	-17°-38'-17	conjunction	-1854 Mar 16 j 04:58	9° $\times$ 26'05	-16°-40'-14
direct	-1863 Nov 29 j 20:53	0° $\times$ 00'10		minimum elong	-1854 Mar 16 j 05:04	9° $\times$ 26'06	16°40'16
				max. Earth dist.	-1854 Mar 17 j 15:46	9° $\times$ 28'06	49.62968 AU
conjunction	-1862 Mar 08 j 01:17	1° $\times$ 29'05	-16°-55'-28	retrograde	-1854 Jun 27 j 08:10	10° $\times$ 57'21	
minimum elong	-1862 Mar 08 j 01:22	1° $\times$ 29'05	16°55'30	opposition	-1854 Sep 18 j 21:43	9° $\times$ 56'49	-17°-19'-57
max. Earth dist.	-1862 Mar 09 j 21:24	1° $\times$ 31'40	49.06558 AU	min. Earth dist.	-1854 Sep 17 j 14:37	9° $\times$ 58'18	47.74243 AU
retrograde	-1862 Jun 19 j 05:20	3° $\times$ 01'47		direct	-1854 Dec 08 j 23:13	8° $\times$ 57'22	
min. Earth dist.	-1862 Sep 09 j 07:45	2° $\times$ 02'32	47.19863 AU				
opposition	-1862 Sep 11 j 00:58	2° $\times$ 00'33	-17°-37'-24	conjunction	-1853 Mar 17 j 11:03	10° $\times$ 24'57	-16°-37'-10
direct	-1862 Dec 01 j 02:50	1° $\times$ 00'34		minimum elong	-1853 Mar 17 j 11:12	10° $\times$ 24'57	16°37'12
				max. Earth dist.	-1853 Mar 18 j 20:48	10° $\times$ 26'54	49.67875 AU
conjunction	-1861 Mar 09 j 07:49	2° $\times$ 29'17	-16°-54'-32	retrograde	-1853 Jun 28 j 11:04	11° $\times$ 56'02	
minimum elong	-1861 Mar 09 j 07:54	2° $\times$ 29'17	16°54'34	min. Earth dist.	-1853 Sep 18 j 20:04	10° $\times$ 57'01	47.78864 AU
max. Earth dist.	-1861 Mar 11 j 04:07	2° $\times$ 31'53	49.14952 AU	opposition	-1853 Sep 20 j 02:54	10° $\times$ 55'32	-17°-16'-36
retrograde	-1861 Jun 20 j 12:30	4° $\times$ 01'47		direct	-1853 Dec 10 j 06:52	9° $\times$ 56'07	



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 4

Attention, astronomical year style is used: The year -1852 in astronomical counting style is the year 1853 BCE in historical counting style.

conjunction	-1852 Mar 17 j 17:06	11° <del>11</del> 23'34	-16°-33'-51	retrograde	-1844 Jul 06 j 16:18	20° <del>20</del> 38'14	
minimum elong	-1852 Mar 17 j 17:12	11° <del>11</del> 23'34	16°33'53	opposition	-1844 Sep 27 j 22:39	19° <del>19</del> 38'18	-16°-34'00
max. Earth dist.	-1852 Mar 19 j 00:55	11° <del>11</del> 25'24	49.72347 AU	min. Earth dist.	-1844 Sep 27 j 02:33	19° <del>19</del> 39'15	48.04910 AU
retrograde	-1852 Jun 28 j 17:03	12° <del>12</del> 54'30		direct	-1844 Dec 18 j 01:58	18° <del>18</del> 39'15	
min. Earth dist.	-1852 Sep 19 j 02:55	11° <del>11</del> 55'27	47.83093 AU				
opposition	-1852 Sep 20 j 08:00	11° <del>11</del> 54'03	-17°-12'-58	conjunction	-1843 Mar 26 j 22:07	20° <del>20</del> 06'01	-15°-51'-58
direct	-1852 Dec 10 j 12:41	10° <del>10</del> 54'40		minimum elong	-1843 Mar 26 j 22:16	20° <del>20</del> 06'02	15°52'00
				max. Earth dist.	-1843 Mar 27 j 20:02	20° <del>20</del> 07'16	49.97422 AU
conjunction	-1851 Mar 18 j 23:15	12° <del>12</del> 21'59	-16°-30'-17	retrograde	-1843 Jul 07 j 19:42	21° <del>21</del> 35'59	
minimum elong	-1851 Mar 18 j 23:23	12° <del>12</del> 22'00	16°30'19	min. Earth dist.	-1843 Sep 28 j 07:46	20° <del>20</del> 37'00	48.05698 AU
max. Earth dist.	-1851 Mar 20 j 07:01	12° <del>12</del> 23'49	49.76455 AU	opposition	-1843 Sep 29 j 03:18	20° <del>20</del> 36'05	-16°-28'00
retrograde	-1851 Jun 29 j 22:47	13° <del>13</del> 52'47		direct	-1843 Dec 19 j 08:21	19° <del>19</del> 37'02	
min. Earth dist.	-1851 Sep 20 j 08:50	12° <del>12</del> 53'43	47.86964 AU				
opposition	-1851 Sep 21 j 13:01	12° <del>12</del> 52'23	-17°-9'-4	conjunction	-1842 Mar 28 j 03:51	21° <del>21</del> 03'45	-15°-46'-5
direct	-1851 Dec 11 j 18:35	11° <del>11</del> 53'02		minimum elong	-1842 Mar 28 j 04:02	21° <del>21</del> 03'46	15°46'07
				max. Earth dist.	-1842 Mar 28 j 23:31	21° <del>21</del> 04'52	49.98041 AU
conjunction	-1850 Mar 20 j 05:05	13° <del>13</del> 20'14	-16°-26'-25	retrograde	-1842 Jul 09 j 00:04	22° <del>22</del> 33'37	
minimum elong	-1850 Mar 20 j 05:13	13° <del>13</del> 20'14	16°26'26	opposition	-1842 Sep 30 j 08:00	21° <del>21</del> 33'44	-16°-21'-46
max. Earth dist.	-1850 Mar 21 j 10:53	13° <del>13</del> 21'57	49.80240 AU	min. Earth dist.	-1842 Sep 29 j 14:31	21° <del>21</del> 34'33	48.05969 AU
retrograde	-1850 Jul 01 j 07:19	14° <del>14</del> 50'53		direct	-1842 Dec 20 j 14:32	20° <del>20</del> 34'41	
opposition	-1850 Sep 22 j 17:53	13° <del>13</del> 50'32	-17°-4'-53				
min. Earth dist.	-1850 Sep 21 j 14:02	13° <del>13</del> 51'52	47.90535 AU	conjunction	-1841 Mar 29 j 09:43	22° <del>22</del> 01'19	-15°-39'-59
direct	-1850 Dec 12 j 20:17	12° <del>12</del> 51'13		minimum elong	-1841 Mar 29 j 09:52	22° <del>22</del> 01'20	15°40'00
				max. Earth dist.	-1841 Mar 30 j 04:55	22° <del>22</del> 02'25	49.98174 AU
conjunction	-1849 Mar 21 j 10:57	14° <del>14</del> 18'21	-16°-22'-17	retrograde	-1841 Jul 10 j 03:45	23° <del>23</del> 31'06	
minimum elong	-1849 Mar 21 j 11:06	14° <del>14</del> 18'21	16°22'19	opposition	-1841 Oct 01 j 12:31	22° <del>22</del> 31'13	-16°-15'-17
max. Earth dist.	-1849 Mar 22 j 16:23	14° <del>14</del> 20'02	49.83731 AU	min. Earth dist.	-1841 Sep 30 j 20:06	22° <del>22</del> 31'59	48.05767 AU
retrograde	-1849 Jul 02 j 13:36	15° <del>15</del> 48'52		direct	-1841 Dec 21 j 21:20	21° <del>21</del> 32'09	
opposition	-1849 Sep 23 j 22:52	14° <del>14</del> 48'36	-17°00'-24				
min. Earth dist.	-1849 Sep 22 j 20:49	14° <del>14</del> 49'50	47.93815 AU	conjunction	-1840 Mar 29 j 15:19	22° <del>22</del> 58'43	-15°-33'-38
direct	-1849 Dec 14 j 00:00	13° <del>13</del> 49'19		minimum elong	-1840 Mar 29 j 15:31	22° <del>22</del> 58'44	15°33'39
				max. Earth dist.	-1840 Mar 30 j 08:21	22° <del>22</del> 59'41	49.97872 AU
conjunction	-1848 Mar 21 j 16:45	15° <del>15</del> 16'22	-16°-17'-53	retrograde	-1840 Jul 10 j 11:39	24° <del>24</del> 28'24	
minimum elong	-1848 Mar 21 j 16:54	15° <del>15</del> 16'22	16°17'53	opposition	-1840 Oct 01 j 17:01	23° <del>23</del> 28'31	-16°-8'-34
max. Earth dist.	-1848 Mar 22 j 21:22	15° <del>15</del> 18'00	49.86953 AU	min. Earth dist.	-1840 Oct 01 j 01:22	23° <del>23</del> 29'16	48.05160 AU
retrograde	-1848 Jul 02 j 15:43	16° <del>16</del> 46'47		direct	-1840 Dec 21 j 23:51	22° <del>22</del> 29'26	
min. Earth dist.	-1848 Sep 23 j 01:30	15° <del>15</del> 47'49	47.96803 AU				
opposition	-1848 Sep 24 j 03:39	15° <del>15</del> 46'34	-16°-55'-39	conjunction	-1839 Mar 30 j 21:05	23° <del>23</del> 55'58	-15°-27'-2
direct	-1848 Dec 14 j 07:36	14° <del>14</del> 47'21		minimum elong	-1839 Mar 30 j 21:15	23° <del>23</del> 55'58	15°27'03
				max. Earth dist.	-1839 Mar 31 j 13:25	23° <del>23</del> 56'53	49.97177 AU
conjunction	-1847 Mar 22 j 22:33	16° <del>16</del> 14'20	-16°-13'-12	retrograde	-1839 Jul 11 j 18:16	25° <del>25</del> 25'33	
minimum elong	-1847 Mar 22 j 22:41	16° <del>16</del> 14'20	16°13'13	opposition	-1839 Oct 02 j 21:27	24° <del>24</del> 25'41	-16°-1'-35
max. Earth dist.	-1847 Mar 24 j 01:19	16° <del>16</del> 15'52	49.89863 AU	min. Earth dist.	-1839 Oct 02 j 07:44	24° <del>24</del> 26'20	48.04185 AU
retrograde	-1847 Jul 03 j 20:14	17° <del>17</del> 44'39		direct	-1839 Dec 23 j 03:08	23° <del>23</del> 26'35	
min. Earth dist.	-1847 Sep 24 j 08:00	16° <del>16</del> 45'41	47.99468 AU				
opposition	-1847 Sep 25 j 08:23	16° <del>16</del> 44'31	-16°-50'-37	conjunction	-1838 Apr 01 j 02:45	24° <del>24</del> 53'05	-15°-20'-12
direct	-1847 Dec 15 j 14:07	15° <del>15</del> 45'22		minimum elong	-1838 Apr 01 j 02:56	24° <del>24</del> 53'05	15°20'13
				max. Earth dist.	-1838 Apr 01 j 18:10	24° <del>24</del> 53'57	49.96158 AU
conjunction	-1846 Mar 24 j 04:29	17° <del>17</del> 12'17	-16°-8'-15	retrograde	-1838 Jul 12 j 21:26	26° <del>26</del> 22'35	
minimum elong	-1846 Mar 24 j 04:39	17° <del>17</del> 12'18	16°08'16	opposition	-1838 Oct 04 j 01:50	25° <del>25</del> 22'44	-15°-54'-20
max. Earth dist.	-1846 Mar 25 j 07:13	17° <del>17</del> 13'49	49.92430 AU	min. Earth dist.	-1838 Oct 03 j 12:02	25° <del>25</del> 23'23	48.02895 AU
retrograde	-1846 Jul 05 j 02:14	18° <del>18</del> 42'32		direct	-1838 Dec 24 j 08:50	24° <del>24</del> 23'38	
opposition	-1846 Sep 26 j 13:08	17° <del>17</del> 42'28	-16°-45'-19				
min. Earth dist.	-1846 Sep 25 j 13:52	17° <del>17</del> 43'35	48.01746 AU	conjunction	-1837 Apr 02 j 08:08	25° <del>25</del> 50'06	-15°-13'-5
direct	-1846 Dec 16 j 19:22	16° <del>16</del> 43'22		minimum elong	-1837 Apr 02 j 08:19	25° <del>25</del> 50'07	15°13'05
				max. Earth dist.	-1837 Apr 02 j 21:49	25° <del>25</del> 50'53	49.94830 AU
conjunction	-1845 Mar 25 j 10:08	18° <del>18</del> 10'14	-16°-3'-3	retrograde	-1837 Jul 14 j 01:10	27° <del>27</del> 19'34	
minimum elong	-1845 Mar 25 j 10:17	18° <del>18</del> 10'14	16°03'05	opposition	-1837 Oct 05 j 06:23	26° <del>26</del> 19'44	-15°-46'-49
max. Earth dist.	-1845 Mar 26 j 10:37	18° <del>18</del> 11'38	49.94588 AU	min. Earth dist.	-1837 Oct 04 j 18:11	26° <del>26</del> 20'19	48.01315 AU
retrograde	-1845 Jul 06 j 10:39	19° <del>19</del> 40'24		direct	-1837 Dec 25 j 15:04	25° <del>25</del> 20'39	
opposition	-1845 Sep 27 j 17:54	18° <del>18</del> 40'24	-16°-39'-47				
min. Earth dist.	-1845 Sep 26 j 19:30	18° <del>18</del> 41'28	48.03586 AU	conjunction	-1836 Apr 02 j 13:53	26° <del>26</del> 47'07	-15°-5'-43
direct	-1845 Dec 17 j 21:36	17° <del>17</del> 41'20		minimum elong	-1836 Apr 02 j 14:04	26° <del>26</del> 47'08	15°05'45
				max. Earth dist.	-1836 Apr 03 j 03:39	26° <del>26</del> 47'54	49.93220 AU
conjunction	-1844 Mar 25 j 16:06	19° <del>19</del> 08'10	-15°-57'-38	retrograde	-1836 Jul 14 j 05:42	28° <del>28</del> 16'34	
minimum elong	-1844 Mar 25 j 16:17	19° <del>19</del> 08'10	15°57'38	opposition	-1836 Oct 05 j 10:44	27° <del>27</del> 16'46	-15°-39'-2
max. Earth dist.	-1844 Mar 26 j 15:31	19° <del>19</del> 09'30	49.96262 AU	min. Earth dist.	-1836 Oct 04 j 23:20	27° <del>27</del> 17'18	47.99430 AU



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 5

Attention, astronomical year style is used: The year -1836 in astronomical counting style is the year 1837 BCE in historical counting style.

direct	-1836 Dec 25 j 20:51	26° $\mathring{\text{K}}$ 17'41		opposition	-1828 Oct 12 j 22:06	4° $\mathring{\text{V}}$ 55'53	-14°-28'-3
				min. Earth dist.	-1828 Oct 12 j 20:55	4° $\mathring{\text{V}}$ 55'56	47.68601 AU
conjunction	-1835 Apr 03 j 19:30	27° $\mathring{\text{K}}$ 44'11	-14°-58'-5	direct	-1827 Jan 02 j 05:55	3° $\mathring{\text{V}}$ 56'42	
minimum elong	-1835 Apr 03 j 19:41	27° $\mathring{\text{K}}$ 44'11	14°58'06				
max. Earth dist.	-1835 Apr 04 j 07:09	27° $\mathring{\text{K}}$ 44'50	49.91309 AU	conjunction	-1827 Apr 11 j 17:52	5° $\mathring{\text{V}}$ 23'33	-13°-48'-45
retrograde	-1835 Jul 15 j 13:52	29° $\mathring{\text{K}}$ 13'37		minimum elong	-1827 Apr 11 j 18:05	5° $\mathring{\text{V}}$ 23'34	13°48'46
opposition	-1835 Oct 06 j 15:09	28° $\mathring{\text{K}}$ 13'52	-15°-30'-59	max. Earth dist.	-1827 Apr 11 j 17:36	5° $\mathring{\text{V}}$ 23'32	49.59660 AU
min. Earth dist.	-1835 Oct 06 j 04:25	28° $\mathring{\text{K}}$ 14'22	47.97230 AU	retrograde	-1827 Jul 23 j 07:25	6° $\mathring{\text{V}}$ 53'00	
direct	-1835 Dec 26 j 22:41	27° $\mathring{\text{K}}$ 14'49		opposition	-1827 Oct 14 j 02:36	5° $\mathring{\text{V}}$ 53'17	-14°-18'-8
				min. Earth dist.	-1827 Oct 14 j 03:22	5° $\mathring{\text{V}}$ 53'15	47.62641 AU
conjunction	-1834 Apr 05 j 01:08	28° $\mathring{\text{K}}$ 41'20	-14°-50'-13	direct	-1826 Jan 03 j 13:04	4° $\mathring{\text{V}}$ 54'04	
minimum elong	-1834 Apr 05 j 01:19	28° $\mathring{\text{K}}$ 41'21	14°50'15				
max. Earth dist.	-1834 Apr 05 j 12:04	28° $\mathring{\text{K}}$ 41'57	49.89040 AU	conjunction	-1826 Apr 12 j 23:40	6° $\mathring{\text{V}}$ 20'57	-13°-39'-2
	-1834 Jun 14 j 11:12	0° $\mathring{\text{V}}$		minimum elong	-1826 Apr 12 j 23:51	6° $\mathring{\text{V}}$ 20'58	13°39'02
retrograde	-1834 Jul 16 j 19:49	0° $\mathring{\text{V}}$ 10'47		max. Earth dist.	-1826 Apr 12 j 23:20	6° $\mathring{\text{V}}$ 20'56	49.53664 AU
	-1834 Aug 18 j 04:51	30° $\mathring{\text{R}}$ $\mathring{\text{K}}$		retrograde	-1826 Jul 24 j 09:48	7° $\mathring{\text{V}}$ 50'25	
opposition	-1834 Oct 07 j 19:37	29° $\mathring{\text{K}}$ 11'04	-15°-22'-41	opposition	-1826 Oct 15 j 06:59	6° $\mathring{\text{V}}$ 50'41	-14°-7'-56
min. Earth dist.	-1834 Oct 07 j 10:55	29° $\mathring{\text{K}}$ 11'29	47.94640 AU	min. Earth dist.	-1826 Oct 15 j 08:22	6° $\mathring{\text{V}}$ 50'37	47.56338 AU
direct	-1834 Dec 28 j 02:15	28° $\mathring{\text{K}}$ 12'03		direct	-1825 Jan 04 j 20:48	5° $\mathring{\text{V}}$ 51'24	
conjunction	-1833 Apr 06 j 06:53	29° $\mathring{\text{K}}$ 38'38	-14°-42'-6	conjunction	-1825 Apr 14 j 05:23	7° $\mathring{\text{V}}$ 18'21	-13°-29'-5
minimum elong	-1833 Apr 06 j 07:05	29° $\mathring{\text{K}}$ 38'38	14°42'07	minimum elong	-1825 Apr 14 j 05:35	7° $\mathring{\text{V}}$ 18'22	13°29'06
max. Earth dist.	-1833 Apr 06 j 16:39	29° $\mathring{\text{K}}$ 39'11	49.86373 AU	max. Earth dist.	-1825 Apr 14 j 02:58	7° $\mathring{\text{V}}$ 18'13	49.47358 AU
	-1833 Apr 22 j 03:09	0° $\mathring{\text{V}}$		retrograde	-1825 Jul 25 j 17:14	8° $\mathring{\text{V}}$ 47'51	
retrograde	-1833 Jul 18 j 00:01	1° $\mathring{\text{V}}$ 08'04		opposition	-1825 Oct 16 j 11:22	7° $\mathring{\text{V}}$ 48'05	-13°-57'-29
opposition	-1833 Oct 08 j 23:55	0° $\mathring{\text{V}}$ 08'25	-15°-14'-9	min. Earth dist.	-1825 Oct 16 j 13:25	7° $\mathring{\text{V}}$ 47'59	47.49747 AU
min. Earth dist.	-1833 Oct 08 j 15:42	0° $\mathring{\text{V}}$ 08'48	47.91609 AU	direct	-1824 Jan 05 j 23:30	6° $\mathring{\text{V}}$ 48'44	
	-1833 Oct 16 j 09:56	30° $\mathring{\text{R}}$ $\mathring{\text{K}}$					
direct	-1833 Dec 29 j 07:43	29° $\mathring{\text{K}}$ 09'24		conjunction	-1824 Apr 14 j 11:15	8° $\mathring{\text{V}}$ 15'46	-13°-18'-52
	-1832 Mar 10 j 05:42	0° $\mathring{\text{V}}$		minimum elong	-1824 Apr 14 j 11:27	8° $\mathring{\text{V}}$ 15'47	13°18'52
				max. Earth dist.	-1824 Apr 14 j 08:16	8° $\mathring{\text{V}}$ 15'36	49.40758 AU
conjunction	-1832 Apr 06 j 12:37	0° $\mathring{\text{V}}$ 36'03	-14°-33'-46	retrograde	-1824 Jul 25 j 23:56	9° $\mathring{\text{V}}$ 45'19	
minimum elong	-1832 Apr 06 j 12:48	0° $\mathring{\text{V}}$ 36'03	14°33'47	opposition	-1824 Oct 16 j 15:55	8° $\mathring{\text{V}}$ 45'32	-13°-46'-46
max. Earth dist.	-1832 Apr 06 j 19:59	0° $\mathring{\text{V}}$ 36'28	49.83215 AU	min. Earth dist.	-1824 Oct 16 j 19:39	8° $\mathring{\text{V}}$ 45'21	47.42853 AU
retrograde	-1832 Jul 18 j 04:34	2° $\mathring{\text{V}}$ 05'30		direct	-1823 Jan 06 j 02:55	7° $\mathring{\text{V}}$ 46'09	
opposition	-1832 Oct 09 j 04:29	1° $\mathring{\text{V}}$ 05'52	-15°-5'-23				
min. Earth dist.	-1832 Oct 08 j 22:33	1° $\mathring{\text{V}}$ 06'09	47.88063 AU	conjunction	-1823 Apr 15 j 17:12	9° $\mathring{\text{V}}$ 13'17	-13°-8'-23
direct	-1832 Dec 29 j 13:36	0° $\mathring{\text{V}}$ 06'51		minimum elong	-1823 Apr 15 j 17:24	9° $\mathring{\text{V}}$ 13'17	13°08'24
				max. Earth dist.	-1823 Apr 15 j 13:16	9° $\mathring{\text{V}}$ 13'03	49.33868 AU
conjunction	-1831 Apr 07 j 18:38	1° $\mathring{\text{V}}$ 33'32	-14°-25'-12	retrograde	-1823 Jul 27 j 05:37	10° $\mathring{\text{V}}$ 42'52	
minimum elong	-1831 Apr 07 j 18:51	1° $\mathring{\text{V}}$ 33'33	14°25'12	opposition	-1823 Oct 17 j 20:14	9° $\mathring{\text{V}}$ 43'04	-13°-35'-47
max. Earth dist.	-1831 Apr 08 j 01:17	1° $\mathring{\text{V}}$ 33'55	49.79522 AU	min. Earth dist.	-1823 Oct 18 j 00:09	9° $\mathring{\text{V}}$ 42'53	47.35651 AU
retrograde	-1831 Jul 19 j 08:17	3° $\mathring{\text{V}}$ 03'00		direct	-1822 Jan 07 j 07:15	8° $\mathring{\text{V}}$ 43'39	
opposition	-1831 Oct 10 j 08:51	2° $\mathring{\text{V}}$ 03'23	-14°-56'-23				
min. Earth dist.	-1831 Oct 10 j 04:06	2° $\mathring{\text{V}}$ 03'37	47.83954 AU	conjunction	-1822 Apr 16 j 23:06	10° $\mathring{\text{V}}$ 10'55	-12°-57'-40
direct	-1831 Dec 30 j 20:12	1° $\mathring{\text{V}}$ 04'21		minimum elong	-1822 Apr 16 j 23:18	10° $\mathring{\text{V}}$ 10'55	12°57'40
				max. Earth dist.	-1822 Apr 16 j 17:11	10° $\mathring{\text{V}}$ 10'34	49.26642 AU
conjunction	-1830 Apr 09 j 00:26	2° $\mathring{\text{V}}$ 31'05	-14°-16'-26	retrograde	-1822 Jul 28 j 10:30	11° $\mathring{\text{V}}$ 40'34	
minimum elong	-1830 Apr 09 j 00:37	2° $\mathring{\text{V}}$ 31'05	14°16'26	opposition	-1822 Oct 19 j 00:51	10° $\mathring{\text{V}}$ 40'46	-13°-24'-32
max. Earth dist.	-1830 Apr 09 j 04:29	2° $\mathring{\text{V}}$ 31'18	49.75285 AU	min. Earth dist.	-1822 Oct 19 j 06:43	10° $\mathring{\text{V}}$ 40'29	47.28098 AU
retrograde	-1830 Jul 20 j 16:22	4° $\mathring{\text{V}}$ 00'33		direct	-1821 Jan 08 j 12:32	9° $\mathring{\text{V}}$ 41'18	
opposition	-1830 Oct 11 j 13:20	3° $\mathring{\text{V}}$ 00'55	-14°-47'-11				
min. Earth dist.	-1830 Oct 11 j 09:45	3° $\mathring{\text{V}}$ 01'05	47.79318 AU	conjunction	-1821 Apr 18 j 05:06	11° $\mathring{\text{V}}$ 08'41	-12°-46'-42
direct	-1830 Dec 31 j 22:39	2° $\mathring{\text{V}}$ 01'51		minimum elong	-1821 Apr 18 j 05:18	11° $\mathring{\text{V}}$ 08'42	12°46'42
				max. Earth dist.	-1821 Apr 17 j 22:54	11° $\mathring{\text{V}}$ 08'20	49.19036 AU
conjunction	-1829 Apr 10 j 06:10	3° $\mathring{\text{V}}$ 28'37	-14°-7'-26	retrograde	-1821 Jul 29 j 13:55	12° $\mathring{\text{V}}$ 38'27	
minimum elong	-1829 Apr 10 j 06:23	3° $\mathring{\text{V}}$ 28'37	14°07'27	opposition	-1821 Oct 20 j 05:26	11° $\mathring{\text{V}}$ 38'38	-13°-13'-3
max. Earth dist.	-1829 Apr 10 j 09:15	3° $\mathring{\text{V}}$ 28'47	49.70522 AU	min. Earth dist.	-1821 Oct 20 j 12:15	11° $\mathring{\text{V}}$ 38'18	47.20114 AU
retrograde	-1829 Jul 21 j 23:59	4° $\mathring{\text{V}}$ 58'04		direct	-1820 Jan 09 j 19:33	10° $\mathring{\text{V}}$ 39'08	
opposition	-1829 Oct 12 j 17:52	3° $\mathring{\text{V}}$ 58'25	-14°-37'-44				
min. Earth dist.	-1829 Oct 12 j 16:25	3° $\mathring{\text{V}}$ 58'30	47.74177 AU	conjunction	-1820 Apr 18 j 11:15	12° $\mathring{\text{V}}$ 06'38	-12°-35'-29
direct	-1828 Jan 02 j 01:21	2° $\mathring{\text{V}}$ 59'19		minimum elong	-1820 Apr 18 j 11:28	12° $\mathring{\text{V}}$ 06'39	12°35'29
				max. Earth dist.	-1820 Apr 18 j 02:33	12° $\mathring{\text{V}}$ 06'08	49.10971 AU
conjunction	-1828 Apr 10 j 12:03	4° $\mathring{\text{V}}$ 26'06	-13°-58'-12	retrograde	-1820 Jul 29 j 20:57	13° $\mathring{\text{V}}$ 36'30	
minimum elong	-1828 Apr 10 j 12:14	4° $\mathring{\text{V}}$ 26'07	13°58'13	opposition	-1820 Oct 20 j 10:00	12° $\mathring{\text{V}}$ 36'39	-13°-1'-19
max. Earth dist.	-1828 Apr 10 j 13:48	4° $\mathring{\text{V}}$ 26'12	49.65302 AU	min. Earth dist.	-1820 Oct 20 j 18:10	12° $\mathring{\text{V}}$ 36'15	47.11651 AU
retrograde	-1828 Jul 22 j 04:37	5° $\mathring{\text{V}}$ 55'33		direct	-1819 Jan 09 j 23:19	11° $\mathring{\text{V}}$ 37'05	



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 6

Attention, astronomical year style is used: The year -1819 in astronomical counting style is the year 1820 BCE in historical counting style.

conjunction	-1819 Apr 19 j 17:37	13°V04'44	-12°-24'-4	retrograde	-1811 Aug 08 j 00:39	22°V24'29	
minimum elong	-1819 Apr 19 j 17:49	13°V04'45	12°24'04	opposition	-1811 Oct 29 j 05:37	21°V24'07	-11°-4'-35
max. Earth dist.	-1819 Apr 19 j 07:41	13°V04'10	49.02387 AU	min. Earth dist.	-1811 Oct 30 j 00:06	21°V23'13	46.15953 AU
retrograde	-1819 Jul 31 j 04:27	14°V34'41		direct	-1810 Jan 18 j 22:48	20°V23'46	
opposition	-1819 Oct 21 j 14:50	13°V34'48	-12°-49'-22	max. Earth dist.	-1810 Apr 28 j 05:40	21°V51'45	48.06449 AU
min. Earth dist.	-1819 Oct 22 j 01:09	13°V34'18	47.02652 AU				
direct	-1818 Jan 11 j 02:50	12°V35'10		conjunction	-1810 Apr 29 j 03:26	21°V53'01	-10°-30'-19
				minimum elong	-1810 Apr 29 j 03:38	21°V53'02	10°30'20
conjunction	-1818 Apr 20 j 23:48	14°V02'57	-12°-12'-24	retrograde	-1810 Aug 09 j 07:25	23°V24'09	
minimum elong	-1818 Apr 21 j 00:01	14°V02'58	12°12'25	opposition	-1810 Oct 30 j 10:47	22°V23'45	-10°-50'-16
max. Earth dist.	-1818 Apr 20 j 12:22	14°V02'18	48.93287 AU	min. Earth dist.	-1810 Oct 31 j 06:26	22°V22'48	46.03734 AU
retrograde	-1818 Aug 01 j 11:08	15°V32'59		direct	-1809 Jan 20 j 03:29	21°V23'20	
opposition	-1818 Oct 22 j 19:30	14°V33'03	-12°-37'-10	max. Earth dist.	-1809 Apr 29 j 11:51	22°V51'31	47.94191 AU
min. Earth dist.	-1818 Oct 23 j 06:12	14°V32'32	46.93138 AU				
direct	-1817 Jan 12 j 06:47	13°V33'20		conjunction	-1809 Apr 30 j 10:24	22°V52'49	-10°-16'-23
				minimum elong	-1809 Apr 30 j 10:37	22°V52'50	10°16'23
conjunction	-1817 Apr 22 j 06:03	15°V01'15	-12°00'-31	retrograde	-1809 Aug 10 j 15:33	24°V24'10	
minimum elong	-1817 Apr 22 j 06:15	15°V01'16	12°00'32	opposition	-1809 Oct 31 j 16:04	23°V23'43	-10°-35'-41
max. Earth dist.	-1817 Apr 21 j 16:21	15°V00'28	48.83680 AU	min. Earth dist.	-1809 Nov 01 j 13:34	23°V22'40	45.91121 AU
retrograde	-1817 Aug 02 j 15:29	16°V31'23		direct	-1808 Jan 21 j 07:18	22°V23'13	
opposition	-1817 Oct 24 j 00:16	15°V31'23	-12°-24'-44				
min. Earth dist.	-1817 Oct 24 j 13:14	15°V30'45	46.83152 AU	conjunction	-1808 Apr 30 j 17:31	23°V52'58	-10°-2'-13
direct	-1816 Jan 13 j 13:11	14°V31'34		minimum elong	-1808 Apr 30 j 17:42	23°V52'58	10°02'13
				max. Earth dist.	-1808 Apr 29 j 17:25	23°V51'34	47.81519 AU
conjunction	-1816 Apr 22 j 12:29	15°V59'38	-11°-48'-24	retrograde	-1808 Aug 11 j 01:26	25°V24'31	
minimum elong	-1816 Apr 22 j 12:42	15°V59'39	11°48'25	opposition	-1808 Oct 31 j 21:25	24°V24'00	-10°-20'-51
max. Earth dist.	-1816 Apr 21 j 22:25	15°V58'50	48.73628 AU	min. Earth dist.	-1808 Nov 01 j 19:26	24°V22'55	45.78053 AU
retrograde	-1816 Aug 02 j 18:05	17°V29'52		direct	-1807 Jan 21 j 10:05	23°V23'23	
opposition	-1816 Oct 24 j 05:00	16°V29'48	-12°-12'-3	max. Earth dist.	-1807 Apr 30 j 22:20	24°V51'52	47.68346 AU
min. Earth dist.	-1816 Oct 24 j 18:43	16°V29'08	46.72732 AU				
direct	-1815 Jan 13 j 21:26	15°V29'53		conjunction	-1807 May 02 j 00:44	24°V53'24	-9°-47'-47
				minimum elong	-1807 May 02 j 00:56	24°V53'25	9°47'47
conjunction	-1815 Apr 23 j 18:47	16°V58'07	-11°-36'-2	retrograde	-1807 Aug 12 j 07:51	26°V25'09	
minimum elong	-1815 Apr 23 j 18:58	16°V58'07	11°36'02	opposition	-1807 Nov 02 j 03:00	25°V24'33	-10°-5'-46
max. Earth dist.	-1815 Apr 23 j 02:23	16°V57'10	48.63178 AU	min. Earth dist.	-1807 Nov 03 j 03:25	25°V23'22	45.64480 AU
retrograde	-1815 Aug 04 j 01:22	18°V28'27		direct	-1806 Jan 22 j 16:07	24°V23'49	
opposition	-1815 Oct 25 j 09:41	17°V28'19	-11°-59'-6	max. Earth dist.	-1806 May 02 j 05:04	25°V52'31	47.54673 AU
min. Earth dist.	-1815 Oct 26 j 00:23	17°V27'36	46.61956 AU				
direct	-1814 Jan 15 j 00:59	16°V28'18		conjunction	-1806 May 03 j 08:08	25°V54'06	-9°-33'-7
max. Earth dist.	-1814 Apr 24 j 08:17	17°V55'43	48.52383 AU	minimum elong	-1806 May 03 j 08:19	25°V54'06	9°33'07
				retrograde	-1806 Aug 13 j 11:06	27°V26'03	
conjunction	-1814 Apr 25 j 01:14	17°V56'42	-11°-23'-25	opposition	-1806 Nov 03 j 08:36	26°V25'20	-9°-50'-25
minimum elong	-1814 Apr 25 j 01:27	17°V56'42	11°23'26	min. Earth dist.	-1806 Nov 04 j 09:48	26°V24'07	45.50402 AU
retrograde	-1814 Aug 05 j 08:23	19°V27'10		direct	-1805 Jan 24 j 01:40	25°V24'28	
opposition	-1814 Oct 26 j 14:38	18°V26'57	-11°-45'-53	max. Earth dist.	-1805 May 03 j 09:43	26°V53'16	47.40512 AU
min. Earth dist.	-1814 Oct 27 j 06:55	18°V26'10	46.50860 AU				
direct	-1813 Jan 16 j 04:43	17°V26'52		conjunction	-1805 May 04 j 15:22	26°V55'00	-9°-18'-13
				minimum elong	-1805 May 04 j 15:34	26°V55'01	9°18'13
conjunction	-1813 Apr 26 j 07:33	18°V55'26	-11°-10'-33	retrograde	-1805 Aug 14 j 17:31	28°V27'09	
minimum elong	-1813 Apr 26 j 07:45	18°V55'26	11°10'32	opposition	-1805 Nov 04 j 14:20	27°V26'20	-9°-34'-48
max. Earth dist.	-1813 Apr 25 j 13:43	18°V54'24	48.41309 AU	min. Earth dist.	-1805 Nov 05 j 16:56	27°V25'02	45.35858 AU
retrograde	-1813 Aug 06 j 15:09	20°V26'02		direct	-1804 Jan 25 j 08:05	26°V25'18	
opposition	-1813 Oct 27 j 19:31	19°V25'46	-11°-32'-24				
min. Earth dist.	-1813 Oct 28 j 11:47	19°V24'59	46.39493 AU	conjunction	-1804 May 04 j 23:01	27°V56'05	-9°-3'-3
direct	-1812 Jan 17 j 09:16	18°V25'35		minimum elong	-1804 May 04 j 23:11	27°V56'06	9°03'03
				max. Earth dist.	-1804 May 03 j 16:31	27°V54'18	47.25889 AU
conjunction	-1812 Apr 26 j 14:07	19°V54'22	-10°-57'-24	retrograde	-1804 Aug 15 j 00:10	29°V28'27	
minimum elong	-1812 Apr 26 j 14:19	19°V54'23	10°57'25	opposition	-1804 Nov 04 j 20:05	28°V27'30	-9°-18'-56
max. Earth dist.	-1812 Apr 25 j 18:25	19°V53'14	48.29959 AU	min. Earth dist.	-1804 Nov 06 j 00:29	28°V26'07	45.20880 AU
retrograde	-1812 Aug 06 j 20:56	21°V25'07		direct	-1803 Jan 25 j 14:05	27°V26'19	
opposition	-1812 Oct 28 j 00:31	20°V24'48	-11°-18'-38	max. Earth dist.	-1803 May 04 j 22:49	28°V55'30	47.10876 AU
min. Earth dist.	-1812 Oct 28 j 18:36	20°V23'56	46.27864 AU				
direct	-1811 Jan 17 j 14:59	19°V24'32		conjunction	-1803 May 06 j 06:38	28°V57'22	-8°-47'-38
				minimum elong	-1803 May 06 j 06:49	28°V57'22	8°47'38
conjunction	-1811 Apr 27 j 20:53	20°V53'33	-10°-43'-59				
minimum elong	-1811 Apr 27 j 21:06	20°V53'33	10°43'59	retrograde	-1803 Jun 23 j 20:20	0°B	
max. Earth dist.	-1811 Apr 27 j 01:11	20°V52'24	48.18351 AU				
					-1803 Aug 16 j 08:55	0°B29'57	
					-1803 Oct 09 j 09:25	30°R V	



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 7

Attention, astronomical year style is used: The year -1803 in astronomical counting style is the year 1804 BCE in historical counting style.

opposition	-1803 Nov 06 j 01:55	29° $\Upsilon$ 28'52	-9°-2'-47	opposition	-1795 Nov 14 j 06:04	7° $\mathcal{B}$ 52'36	-6°-43'-13
min. Earth dist.	-1803 Nov 07 j 06:35	29° $\Upsilon$ 27'27	45.05539 AU	min. Earth dist.	-1795 Nov 15 j 20:14	7° $\mathcal{B}$ 50'41	43.71944 AU
direct	-1802 Jan 26 j 18:40	28° $\Upsilon$ 27'31		direct	-1794 Feb 04 j 00:54	6° $\mathcal{B}$ 50'03	
max. Earth dist.	-1802 May 06 j 04:31	29° $\Upsilon$ 56'52	46.95507 AU	max. Earth dist.	-1794 May 14 j 14:13	8° $\mathcal{B}$ 21'49	45.61583 AU
conjunction	-1802 May 07 j 14:08	29° $\Upsilon$ 58'51	-8°-31'-57	conjunction	-1794 May 16 j 09:33	8° $\mathcal{B}$ 24'26	-6°-16'-39
minimum elong	-1802 May 07 j 14:18	29° $\Upsilon$ 58'51	8°31'57	minimum elong	-1794 May 16 j 09:42	8° $\mathcal{B}$ 24'27	6°16'38
	-1802 May 08 j 09:44	0° $\mathcal{B}$		retrograde	-1794 Aug 26 j 06:50	9° $\mathcal{B}$ 59'52	
retrograde	-1802 Aug 17 j 17:22	1° $\mathcal{B}$ 31'40		opposition	-1794 Nov 15 j 13:27	8° $\mathcal{B}$ 57'44	-6°-24'-29
opposition	-1802 Nov 07 j 08:01	0° $\mathcal{B}$ 30'27	-8°-46'-21	min. Earth dist.	-1794 Nov 17 j 05:12	8° $\mathcal{B}$ 55'43	43.53446 AU
min. Earth dist.	-1802 Nov 08 j 14:33	0° $\mathcal{B}$ 28'57	44.89882 AU	direct	-1793 Feb 05 j 09:03	7° $\mathcal{B}$ 54'58	
	-1802 Dec 04 j 04:58	30° $\mathcal{R}\Upsilon$		max. Earth dist.	-1793 May 15 j 21:37	9° $\mathcal{B}$ 27'02	45.42986 AU
direct	-1801 Jan 28 j 00:17	29° $\Upsilon$ 28'56					
	-1801 Mar 23 j 07:48	0° $\mathcal{B}$		conjunction	-1793 May 17 j 18:48	9° $\mathcal{B}$ 29'47	-5°-58'-32
conjunction	-1801 May 08 j 21:59	1° $\mathcal{B}$ 00'35	-8°-16'00	minimum elong	-1793 May 17 j 18:57	9° $\mathcal{B}$ 29'47	5°58'32
minimum elong	-1801 May 08 j 22:09	1° $\mathcal{B}$ 00'35	8°16'00	retrograde	-1793 Aug 27 j 17:19	11° $\mathcal{B}$ 05'34	
max. Earth dist.	-1801 May 07 j 12:20	0° $\mathcal{B}$ 58'35	46.79852 AU	opposition	-1793 Nov 16 j 20:44	10° $\mathcal{B}$ 03'16	-6°-5'-28
retrograde	-1801 Aug 18 j 22:35	2° $\mathcal{B}$ 33'38		min. Earth dist.	-1793 Nov 18 j 13:12	10° $\mathcal{B}$ 01'13	43.34506 AU
opposition	-1801 Nov 08 j 14:02	1° $\mathcal{B}$ 32'18	-8°-29'-38	direct	-1792 Feb 06 j 14:40	9° $\mathcal{B}$ 00'18	
min. Earth dist.	-1801 Nov 09 j 20:47	1° $\mathcal{B}$ 30'47	44.73948 AU	max. Earth dist.	-1792 May 16 j 05:12	10° $\mathcal{B}$ 32'40	45.23943 AU
direct	-1800 Jan 29 j 08:56	0° $\mathcal{B}$ 30'38		conjunction	-1792 May 18 j 04:20	10° $\mathcal{B}$ 35'32	-5°-40'-9
max. Earth dist.	-1800 May 07 j 18:05	2° $\mathcal{B}$ 00'29	46.63935 AU	minimum elong	-1792 May 18 j 04:29	10° $\mathcal{B}$ 35'33	5°40'09
conjunction	-1800 May 09 j 05:51	2° $\mathcal{B}$ 02'36	-7°-59'-46	retrograde	-1792 Aug 28 j 04:39	12° $\mathcal{B}$ 11'42	
minimum elong	-1800 May 09 j 06:02	2° $\mathcal{B}$ 02'37	7°59'45	opposition	-1792 Nov 17 j 04:26	11° $\mathcal{B}$ 09'13	-5°-46'-10
retrograde	-1800 Aug 19 j 05:50	3° $\mathcal{B}$ 35'57		min. Earth dist.	-1792 Nov 18 j 23:02	11° $\mathcal{B}$ 07'03	43.15155 AU
opposition	-1800 Nov 08 j 20:19	2° $\mathcal{B}$ 34'30	-8°-12'-37	direct	-1791 Feb 06 j 20:52	10° $\mathcal{B}$ 06'01	
min. Earth dist.	-1800 Nov 10 j 04:14	2° $\mathcal{B}$ 32'55	44.57769 AU	max. Earth dist.	-1791 May 17 j 14:28	11° $\mathcal{B}$ 38'48	45.04525 AU
direct	-1799 Jan 29 j 15:12	1° $\mathcal{B}$ 32'41		conjunction	-1791 May 19 j 13:58	11° $\mathcal{B}$ 41'43	-5°-21'-29
max. Earth dist.	-1799 May 09 j 01:50	3° $\mathcal{B}$ 02'51	46.47755 AU	minimum elong	-1791 May 19 j 14:06	11° $\mathcal{B}$ 41'43	5°21'28
conjunction	-1799 May 10 j 14:02	3° $\mathcal{B}$ 05'00	-7°-43'-16	retrograde	-1791 Aug 29 j 14:00	13° $\mathcal{B}$ 18'14	
minimum elong	-1799 May 10 j 14:12	3° $\mathcal{B}$ 05'01	7°43'16	opposition	-1791 Nov 18 j 12:06	12° $\mathcal{B}$ 15'34	-5°-26'-34
retrograde	-1799 Aug 20 j 12:56	4° $\mathcal{B}$ 38'40		min. Earth dist.	-1791 Nov 20 j 06:54	12° $\mathcal{B}$ 13'23	42.95458 AU
opposition	-1799 Nov 10 j 02:45	3° $\mathcal{B}$ 37'07	-7°-55'-19	direct	-1790 Feb 08 j 06:09	11° $\mathcal{B}$ 12'07	
min. Earth dist.	-1799 Nov 11 j 11:57	3° $\mathcal{B}$ 35'28	44.41318 AU	max. Earth dist.	-1790 May 18 j 21:56	12° $\mathcal{B}$ 45'13	44.84787 AU
direct	-1798 Jan 30 j 21:45	2° $\mathcal{B}$ 35'10		conjunction	-1790 May 20 j 23:39	12° $\mathcal{B}$ 48'17	-5°-2'-32
max. Earth dist.	-1798 May 10 j 08:49	4° $\mathcal{B}$ 05'38	46.31314 AU	minimum elong	-1790 May 20 j 23:47	12° $\mathcal{B}$ 48'18	5°02'32
conjunction	-1798 May 11 j 22:15	4° $\mathcal{B}$ 07'52	-7°-26'-29	retrograde	-1790 Aug 30 j 22:41	14° $\mathcal{B}$ 25'13	
minimum elong	-1798 May 11 j 22:25	4° $\mathcal{B}$ 07'52	7°26'28	opposition	-1790 Nov 19 j 20:03	13° $\mathcal{B}$ 22'20	-5°-6'-40
retrograde	-1798 Aug 21 j 23:43	5° $\mathcal{B}$ 41'51		min. Earth dist.	-1790 Nov 21 j 16:23	13° $\mathcal{B}$ 20'04	42.75491 AU
opposition	-1798 Nov 11 j 09:14	4° $\mathcal{B}$ 40'12	-7°-37'-43	direct	-1789 Feb 09 j 14:34	12° $\mathcal{B}$ 18'39	
min. Earth dist.	-1798 Nov 12 j 18:41	4° $\mathcal{B}$ 38'32	44.24584 AU	max. Earth dist.	-1789 May 20 j 07:44	13° $\mathcal{B}$ 52'12	44.64791 AU
direct	-1797 Feb 01 j 01:30	3° $\mathcal{B}$ 38'07		conjunction	-1789 May 22 j 09:37	13° $\mathcal{B}$ 55'17	-4°-43'-19
max. Earth dist.	-1797 May 11 j 15:27	5° $\mathcal{B}$ 08'53	46.14534 AU	minimum elong	-1789 May 22 j 09:43	13° $\mathcal{B}$ 55'18	4°43'18
conjunction	-1797 May 13 j 06:40	5° $\mathcal{B}$ 11'14	-7°-9'-25		-1789 Jul 08 j 21:14	15° $\mathcal{B}$	
minimum elong	-1797 May 13 j 06:49	5° $\mathcal{B}$ 11'14	7°09'25	retrograde	-1789 Sep 01 j 04:35	15° $\mathcal{B}$ 32'38	
retrograde	-1797 Aug 23 j 09:19	6° $\mathcal{B}$ 45'34			-1789 Oct 26 j 08:16	15° $\mathcal{R}\mathcal{B}$	
opposition	-1797 Nov 12 j 16:04	5° $\mathcal{B}$ 43'49	-7°-19'-50	opposition	-1789 Nov 21 j 04:16	14° $\mathcal{B}$ 29'34	-4°-46'-28
min. Earth dist.	-1797 Nov 14 j 03:51	5° $\mathcal{B}$ 42'02	44.07484 AU	min. Earth dist.	-1789 Nov 23 j 01:25	14° $\mathcal{B}$ 27'14	42.55281 AU
direct	-1796 Feb 02 j 06:50	4° $\mathcal{B}$ 41'35		direct	-1788 Feb 11 j 01:38	13° $\mathcal{B}$ 25'39	
max. Earth dist.	-1796 May 11 j 23:42	6° $\mathcal{B}$ 12'44	45.97357 AU	max. Earth dist.	-1788 May 20 j 23:10	15° $\mathcal{B}$	
conjunction	-1796 May 13 j 15:32	6° $\mathcal{B}$ 15'07	-6°-52'-6		-1788 May 20 j 16:27	14° $\mathcal{B}$ 59'35	44.44584 AU
minimum elong	-1796 May 13 j 15:41	6° $\mathcal{B}$ 15'08	6°52'05	conjunction	-1788 May 22 j 19:46	15° $\mathcal{B}$ 02'47	-4°-23'-48
retrograde	-1796 Aug 23 j 15:51	7° $\mathcal{B}$ 49'49		minimum elong	-1788 May 22 j 19:53	15° $\mathcal{B}$ 02'47	4°23'48
opposition	-1796 Nov 12 j 22:52	6° $\mathcal{B}$ 47'58	-7°-1'-40	retrograde	-1788 Sep 01 j 15:11	16° $\mathcal{B}$ 40'33	
min. Earth dist.	-1796 Nov 14 j 11:17	6° $\mathcal{B}$ 46'08	43.89948 AU	opposition	-1788 Nov 21 j 12:31	15° $\mathcal{B}$ 37'18	-4°-25'-57
direct	-1795 Feb 02 j 16:43	5° $\mathcal{B}$ 45'34		min. Earth dist.	-1788 Nov 23 j 09:57	15° $\mathcal{B}$ 34'57	42.34886 AU
max. Earth dist.	-1795 May 13 j 05:52	7° $\mathcal{B}$ 16'58	45.79716 AU	direct	-1788 Dec 23 j 17:13	15° $\mathcal{R}\mathcal{B}$	
conjunction	-1795 May 15 j 00:28	7° $\mathcal{B}$ 19'33	-6°-34'-30		-1787 Feb 11 j 08:23	14° $\mathcal{B}$ 33'08	
minimum elong	-1795 May 15 j 00:37	7° $\mathcal{B}$ 19'33	6°34'30	max. Earth dist.	-1787 Apr 01 j 10:32	15° $\mathcal{B}$	
retrograde	-1795 Aug 24 j 23:37	8° $\mathcal{B}$ 54'35			-1787 May 22 j 01:49	16° $\mathcal{B}$ 07'32	44.24176 AU
				conjunction	-1787 May 24 j 06:15	16° $\mathcal{B}$ 10'48	-4°-4'-1



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Attention, astronomical year style is used: The year -1787 in astronomical counting style is the year 1788 BCE in historical counting style.

minimum elong	-1787 May 24 j 06:21	16°8'10"48	4°04'00	min. Earth dist.	-1779 Dec 04 j 11:35	26°8'13"53	40.38429 AU
retrograde	-1787 Sep 03 j 02:47	17°8'49"03		direct	-1778 Feb 21 j 23:32	25°8'10"20	
opposition	-1787 Nov 22 j 21:17	16°8'45"36	-4°-5'-8	max. Earth dist.	-1778 Jun 02 j 00:48	26°8'49"28	42.26837 AU
min. Earth dist.	-1787 Nov 24 j 20:26	16°8'43"10	42.14299 AU				
direct	-1786 Feb 12 j 14:12	15°8'41"14		conjunction	-1778 Jun 04 j 16:47	26°8'53"40	0°-53'-12
max. Earth dist.	-1786 May 23 j 12:08	17°8'16"08	44.03581 AU	minimum elong	-1778 Jun 04 j 16:48	26°8'53"40	0°53'11
				retrograde	-1778 Sep 14 j 11:23	28°8'36"54	
conjunction	-1786 May 25 j 16:46	17°8'19"26	-3°-43'-55	opposition	-1778 Dec 03 j 14:52	27°8'31"27	0°-44'-7
minimum elong	-1786 May 25 j 16:51	17°8'19"26	3°43'56	min. Earth dist.	-1778 Dec 05 j 23:29	27°8'28"24	40.15058 AU
retrograde	-1786 Sep 04 j 13:59	18°8'58"11		direct	-1777 Feb 23 j 10:50	26°8'24"37	
opposition	-1786 Nov 24 j 06:04	17°8'54"33	-3°-44'00	max. Earth dist.	-1777 Jun 03 j 13:44	28°8'04"24	42.03387 AU
min. Earth dist.	-1786 Nov 26 j 05:13	17°8'52"06	41.93503 AU				
direct	-1785 Feb 13 j 23:57	16°8'49"57		conjunction	-1777 Jun 06 j 06:11	28°8'08"39	0°-30'-38
max. Earth dist.	-1785 May 24 j 20:48	18°8'25"18	43.82736 AU	minimum elong	-1777 Jun 06 j 06:12	28°8'08"39	0°30'37
				retrograde	-1777 Sep 15 j 23:07	29°8'52"32	
conjunction	-1785 May 27 j 03:40	18°8'28"45	-3°-23'-33	opposition	-1777 Dec 05 j 02:16	28°8'46"50	0°-20'-17
minimum elong	-1785 May 27 j 03:45	18°8'28"45	3°23'32	min. Earth dist.	-1777 Dec 07 j 12:13	28°8'43"42	39.91525 AU
retrograde	-1785 Sep 06 j 01:55	20°8'08"00		direct	-1776 Feb 24 j 21:37	27°8'39"41	
opposition	-1785 Nov 25 j 15:07	19°8'04"11	-3°-22'-34	max. Earth dist.	-1776 Jun 04 j 02:43	29°8'20"09	41.79811 AU
min. Earth dist.	-1785 Nov 27 j 16:06	19°8'01"39	41.72443 AU				
direct	-1784 Feb 15 j 09:13	17°8'59"22		conjunction	-1776 Jun 06 j 19:50	29°8'24"28	0°-7'-49
max. Earth dist.	-1784 May 25 j 07:57	19°8'35"17	43.61578 AU	minimum elong	-1776 Jun 06 j 19:50	29°8'24"28	0°07'48
				behind sun begin	-1776 Jun 06 j 13:59	29°8'24"06	
conjunction	-1784 May 27 j 15:06	19°8'38"46	-3°-2'-54	behind sun end	-1776 Jun 07 j 01:42	29°8'24"50	
minimum elong	-1784 May 27 j 15:11	19°8'38"47	3°02'54		-1776 Jun 29 j 12:33	0°II	
retrograde	-1784 Sep 06 j 11:13	21°8'18"33		retrograde	-1776 Sep 16 j 13:50	1°II09"02	
opposition	-1784 Nov 26 j 00:34	20°8'14"33	-3°00'-50	asc. node	-1776 Oct 08 j 16:56	1°II02"57	
min. Earth dist.	-1784 Nov 28 j 02:35	20°8'11"56	41.51034 AU	opposition	-1776 Dec 05 j 14:00	0°II03"04	0°03'50
direct	-1783 Feb 15 j 20:43	19°8'09"29			-1776 Dec 07 j 22:39	30°R8	
max. Earth dist.	-1783 May 26 j 17:19	20°8'45"52	43.40051 AU	min. Earth dist.	-1776 Dec 07 j 23:46	29°8'59"56	39.67892 AU
				direct	-1775 Feb 25 j 07:56	28°8'55"36	
conjunction	-1783 May 29 j 02:35	20°8'49"31	-2°-41'-59		-1775 May 13 j 00:37	0°II	
minimum elong	-1783 May 29 j 02:39	20°8'49"31	2°41'57	max. Earth dist.	-1775 Jun 05 j 15:06	0°II36"44	41.56122 AU
retrograde	-1783 Sep 07 j 22:10	22°8'29"50					
opposition	-1783 Nov 27 j 10:13	21°8'25"38	-2°-38'-47	conjunction	-1775 Jun 08 j 09:46	0°II41"11	0°15'21
min. Earth dist.	-1783 Nov 29 j 13:14	21°8'22"57	41.29248 AU	minimum elong	-1775 Jun 08 j 09:45	0°II41"11	0°15'23
direct	-1782 Feb 17 j 05:51	20°8'20"18		behind sun begin	-1775 Jun 08 j 08:20	0°II41"06	
max. Earth dist.	-1782 May 28 j 03:48	21°8'57"11	43.18114 AU	behind sun end	-1775 Jun 08 j 11:10	0°II41"17	
				retrograde	-1775 Sep 18 j 06:35	2°II26"28	
conjunction	-1782 May 30 j 14:32	22°8'00"57	-2°-20'-46	opposition	-1775 Dec 07 j 02:14	1°II20"15	0°28'15
minimum elong	-1782 May 30 j 14:36	22°8'00"57	2°20'46	min. Earth dist.	-1775 Dec 09 j 13:33	1°II17"01	39.44169 AU
retrograde	-1782 Sep 09 j 09:52	23°8'41"51		direct	-1774 Feb 26 j 17:50	0°II12"29	
opposition	-1782 Nov 28 j 20:16	22°8'37"25	-2°-16'-27	max. Earth dist.	-1774 Jun 07 j 05:50	1°II54"26	41.32345 AU
min. Earth dist.	-1782 Dec 01 j 01:16	22°8'34"37	41.07060 AU				
direct	-1781 Feb 18 j 14:31	21°8'31"48		conjunction	-1774 Jun 10 j 00:11	1°II58"54	0°38'43
max. Earth dist.	-1781 May 29 j 15:03	23°8'09"15	42.95794 AU	minimum elong	-1774 Jun 10 j 00:09	1°II58"54	0°38'44
				retrograde	-1774 Sep 19 j 21:27	3°II44"55	
conjunction	-1781 Jun 01 j 02:41	23°8'13"05	-1°-59'-17	opposition	-1774 Dec 08 j 14:41	2°II38"27	0°52'57
minimum elong	-1781 Jun 01 j 02:44	23°8'13"05	1°59'16	min. Earth dist.	-1774 Dec 11 j 01:58	2°II35"13	39.20346 AU
retrograde	-1781 Sep 10 j 23:37	24°8'54"32		direct	-1773 Feb 28 j 07:21	1°II30"23	
opposition	-1781 Nov 30 j 06:28	23°8'49"52	-1°-53'-49	max. Earth dist.	-1773 Jun 08 j 18:35	3°II13"02	41.08437 AU
min. Earth dist.	-1781 Dec 02 j 11:43	23°8'47"03	40.84497 AU				
direct	-1780 Feb 19 j 23:42	22°8'43"58		conjunction	-1773 Jun 11 j 14:53	3°II17"40	1°02'20
max. Earth dist.	-1780 May 30 j 01:12	24°8'21"54	42.73097 AU	minimum elong	-1773 Jun 11 j 14:51	3°II17"40	1°02'22
				retrograde	-1773 Sep 21 j 12:38	5°II04"27	
conjunction	-1780 Jun 01 j 15:11	24°8'25"55	-1°-37'-32	opposition	-1773 Dec 10 j 03:36	3°II57"44	1°17'55
minimum elong	-1780 Jun 01 j 15:13	24°8'25"55	1°37'31	min. Earth dist.	-1773 Dec 12 j 16:15	3°II54"25	38.96377 AU
retrograde	-1780 Sep 11 j 12:34	26°8'07"56		direct	-1772 Feb 29 j 19:55	2°II49"23	
opposition	-1780 Nov 30 j 16:57	25°8'03"01	-1°-30'-53	max. Earth dist.	-1772 Jun 09 j 09:37	4°II32"51	40.84323 AU
min. Earth dist.	-1780 Dec 03 j 00:19	25°8'00"04	40.61602 AU				
direct	-1779 Feb 20 j 09:43	23°8'56"48		conjunction	-1772 Jun 12 j 06:18	4°II37"33	1°26'12
max. Earth dist.	-1779 May 31 j 13:55	25°8'35"23	42.50090 AU	minimum elong	-1772 Jun 12 j 06:15	4°II37"33	1°26'15
				retrograde	-1772 Sep 22 j 01:08	6°II25"07	
conjunction	-1779 Jun 03 j 04:01	25°8'39"26	-1°-15'-30	opposition	-1772 Dec 10 j 16:58	5°II18"09	1°43'10
minimum elong	-1779 Jun 03 j 04:04	25°8'39"26	1°15'29	min. Earth dist.	-1772 Dec 13 j 06:52	5°II14"44	38.72179 AU
retrograde	-1779 Sep 12 j 23:04	27°8'22"02		direct	-1771 Mar 02 j 11:00	4°II09"28	
opposition	-1779 Dec 02 j 03:47	26°8'16"51	-1°-7'-39	max. Earth dist.	-1771 Jun 10 j 23:49	5°II53"42	40.59963 AU



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 9

Attention, astronomical year style is used: The year -1771 in astronomical counting style is the year 1772 BCE in historical counting style.

conjunction	-1771 Jun 13 j 21:59	5°II58'32	1°50'19	opposition	-1763 Dec 23 j 13:52	18°II11'07	5°41'24
minimum elong	-1771 Jun 13 j 21:56	5°II58'32	1°50'21	min. Earth dist.	-1763 Dec 26 j 11:11	18°II07'05	36.45161 AU
retrograde	-1771 Sep 23 j 17:07	7°II46'55		direct	-1762 Mar 15 j 01:20	16°II58'49	
opposition	-1771 Dec 12 j 06:47	6°II39'41	2°08'42	max. Earth dist.	-1762 Jun 24 j 10:35	18°II51'13	38.31495 AU
min. Earth dist.	-1771 Dec 14 j 21:04	6°II36'13	38.47726 AU				
direct	-1770 Mar 03 j 23:08	5°II30'39		conjunction	-1762 Jun 27 j 15:44	18°II56'55	5°36'47
max. Earth dist.	-1770 Jun 12 j 14:23	7°II15'40	40.35303 AU	minimum elong	-1762 Jun 27 j 15:32	18°II56'54	5°36'49
				retrograde	-1762 Oct 07 j 14:09	20°II53'27	
conjunction	-1770 Jun 15 j 14:04	7°II20'38	2°14'41	opposition	-1762 Dec 25 j 08:04	19°II43'06	6°08'49
minimum elong	-1770 Jun 15 j 14:00	7°II20'37	2°14'43	min. Earth dist.	-1762 Dec 28 j 05:03	19°II39'03	36.19747 AU
retrograde	-1770 Sep 25 j 09:25	9°II09'51		direct	-1761 Mar 16 j 20:14	18°II30'24	
opposition	-1770 Dec 13 j 21:11	8°II02'18	2°34'29	max. Earth dist.	-1761 Jun 26 j 05:27	20°II23'50	38.05947 AU
min. Earth dist.	-1770 Dec 16 j 13:32	7°II58'42	38.22980 AU				
direct	-1769 Mar 05 j 11:00	6°II52'54		conjunction	-1761 Jun 29 j 12:14	20°II29'42	6°02'42
max. Earth dist.	-1769 Jun 14 j 06:37	8°II38'46	40.10359 AU	minimum elong	-1761 Jun 29 j 12:02	20°II29'41	6°02'43
				retrograde	-1761 Oct 09 j 13:00	22°II27'18	
conjunction	-1769 Jun 17 j 06:45	8°II43'48	2°39'16	opposition	-1761 Dec 27 j 02:43	21°II16'37	6°36'21
minimum elong	-1769 Jun 17 j 06:40	8°II43'47	2°39'17	min. Earth dist.	-1761 Dec 30 j 00:42	21°II12'30	35.94383 AU
retrograde	-1769 Sep 27 j 03:15	10°II33'50		direct	-1760 Mar 17 j 13:59	20°II03'32	
opposition	-1769 Dec 15 j 11:44	9°II25'58	3°00'31	max. Earth dist.	-1760 Jun 27 j 03:00	21°II58'10	37.80399 AU
min. Earth dist.	-1769 Dec 18 j 04:15	9°II22'21	37.97962 AU				
direct	-1768 Mar 06 j 02:05	8°II16'11		conjunction	-1760 Jun 30 j 09:34	22°II04'04	6°28'43
max. Earth dist.	-1768 Jun 14 j 21:21	10°II02'48	39.85142 AU	minimum elong	-1760 Jun 30 j 09:20	22°II04'03	6°28'45
				retrograde	-1760 Oct 10 j 09:09	24°II02'47	
conjunction	-1768 Jun 17 j 23:50	10°II08'02	3°04'04	opposition	-1760 Dec 27 j 22:15	22°II51'46	7°04'00
minimum elong	-1768 Jun 17 j 23:44	10°II08'01	3°04'07	min. Earth dist.	-1760 Dec 30 j 20:57	22°II47'35	35.69001 AU
retrograde	-1768 Sep 27 j 22:55	11°II58'54		direct	-1759 Mar 19 j 09:58	21°II38'17	
opposition	-1768 Dec 16 j 02:55	10°II50'41	3°26'49	max. Earth dist.	-1759 Jun 28 j 23:37	23°II34'01	37.54814 AU
min. Earth dist.	-1768 Dec 18 j 21:11	10°II46'57	37.72716 AU				
direct	-1767 Mar 07 j 16:38	9°II40'30		conjunction	-1759 Jul 02 j 07:12	23°II40'04	6°54'48
max. Earth dist.	-1767 Jun 16 j 14:58	11°II28'03	39.59704 AU	minimum elong	-1759 Jul 02 j 06:59	23°II40'03	6°54'50
				retrograde	-1759 Oct 12 j 07:14	25°II39'55	
conjunction	-1767 Jun 19 j 17:20	11°II33'19	3°29'06	opposition	-1759 Dec 29 j 18:18	24°II28'34	7°31'43
minimum elong	-1767 Jun 19 j 17:13	11°II33'18	3°29'07	min. Earth dist.	-1758 Jan 01 j 17:09	24°II24'20	35.43582 AU
retrograde	-1767 Sep 29 j 14:53	13°II25'02		direct	-1758 Mar 21 j 05:09	23°II14'39	
opposition	-1767 Dec 17 j 18:32	12°II16'28	3°53'20	max. Earth dist.	-1758 Jun 30 j 21:17	25°II11'33	37.29149 AU
min. Earth dist.	-1767 Dec 20 j 13:16	12°II12'41	37.47285 AU				
direct	-1766 Mar 09 j 09:48	11°II05'52		conjunction	-1758 Jul 04 j 05:44	25°II17'43	7°20'56
max. Earth dist.	-1766 Jun 18 j 07:15	12°II54'14	39.34120 AU	minimum elong	-1758 Jul 04 j 05:28	25°II17'42	7°20'58
				retrograde	-1758 Oct 14 j 05:09	27°II18'44	
conjunction	-1766 Jun 21 j 11:09	12°II59'39	3°54'18	opposition	-1758 Dec 31 j 15:04	26°II07'00	7°59'31
minimum elong	-1766 Jun 21 j 11:02	12°II59'39	3°54'21	min. Earth dist.	-1757 Jan 03 j 15:32	26°II02'39	35.18094 AU
retrograde	-1766 Oct 01 j 08:15	14°II52'16		direct	-1757 Mar 22 j 22:52	24°II52'39	
opposition	-1766 Dec 19 j 10:27	13°II43'20	4°20'04	max. Earth dist.	-1757 Jul 02 j 20:13	26°II50'45	37.03425 AU
min. Earth dist.	-1766 Dec 22 j 05:47	13°II39'29	37.21762 AU				
direct	-1765 Mar 11 j 02:11	12°II32'18		conjunction	-1757 Jul 06 j 04:51	26°II57'00	7°47'06
max. Earth dist.	-1765 Jun 20 j 01:13	14°II21'36	39.08442 AU	minimum elong	-1757 Jul 06 j 04:36	26°II56'59	7°47'08
				retrograde	-1757 Oct 16 j 04:47	28°II59'11	
conjunction	-1765 Jun 23 j 05:37	14°II27'07	4°19'42	opposition	-1756 Jan 02 j 12:27	27°II47'04	8°27'20
minimum elong	-1765 Jun 23 j 05:28	14°II27'06	4°19'44	min. Earth dist.	-1756 Jan 05 j 12:32	27°II42'42	34.92556 AU
retrograde	-1765 Oct 03 j 00:54	16°II20'39		direct	-1756 Mar 23 j 19:41	26°II32'15	
opposition	-1765 Dec 21 j 03:07	15°II11'21	4°47'00	max. Earth dist.	-1756 Jul 03 j 18:21	28°II31'29	36.77643 AU
min. Earth dist.	-1765 Dec 23 j 23:39	15°II07'24	36.96188 AU				
direct	-1764 Mar 11 j 18:09	13°II59'53		conjunction	-1756 Jul 07 j 04:35	28°II37'54	8°13'15
max. Earth dist.	-1764 Jun 20 j 19:48	15°II50'10	38.82751 AU	minimum elong	-1756 Jul 07 j 04:18	28°II37'53	8°13'17
					-1756 Aug 23 j 19:33	0°☾	
conjunction	-1764 Jun 24 j 00:28	15°II55'44	4°45'15	retrograde	-1756 Oct 17 j 06:25	0°☾41'17	
minimum elong	-1764 Jun 24 j 00:18	15°II55'44	4°45'18		-1756 Dec 12 j 06:18	30°☾II	
retrograde	-1764 Oct 03 j 20:01	17°II50'13		opposition	-1755 Jan 03 j 10:34	29°II28'44	8°55'10
opposition	-1764 Dec 21 j 20:07	16°II40'34	5°14'07	min. Earth dist.	-1755 Jan 06 j 12:05	29°II24'17	34.67007 AU
min. Earth dist.	-1764 Dec 24 j 16:07	16°II36'38	36.70641 AU	direct	-1755 Mar 25 j 15:58	28°II13'27	
direct	-1763 Mar 13 j 09:37	15°II28'41			-1755 Jun 28 j 08:50	0°☾	
max. Earth dist.	-1763 Jun 22 j 14:01	17°II19'56	38.57088 AU	max. Earth dist.	-1755 Jul 05 j 19:32	0°☾14'00	36.51872 AU
conjunction	-1763 Jun 25 j 19:53	17°II25'38	5°10'57	conjunction	-1755 Jul 09 j 05:01	0°☾20'26	8°39'22
minimum elong	-1763 Jun 25 j 19:42	17°II25'37	5°10'59	minimum elong	-1755 Jul 09 j 04:44	0°☾20'25	8°39'24
retrograde	-1763 Oct 05 j 16:42	19°II21'08		retrograde	-1755 Oct 19 j 07:54	2°☾25'00	



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 10

Attention, astronomical year style is used: The year -1754 in astronomical counting style is the year 1755 BCE in historical counting style.

opposition	-1754 Jan 05 j 09:21	1° $\mathring{U}$ 12'02	9°22'57	min. Earth dist.	-1746 Jan 23 j 03:02	15° $\mathring{U}$ 57'37	32.46994 AU
min. Earth dist.	-1754 Jan 08 j 10:36	1° $\mathring{U}$ 07'34	34.41507 AU	direct	-1746 Apr 10 j 23:57	14° $\mathring{U}$ 42'43	
	-1754 Mar 11 j 06:55	30° $\mathring{R}$ II		max. Earth dist.	-1746 Jul 23 j 07:42	16° $\mathring{U}$ 55'55	34.30558 AU
direct	-1754 Mar 27 j 15:41	29° $\mathring{I}$ 56'15					
	-1754 Apr 12 j 22:28	0° $\mathring{U}$		conjunction	-1746 Jul 26 j 15:09	17° $\mathring{U}$ 02'46	12°24'47
max. Earth dist.	-1754 Jul 07 j 19:01	1° $\mathring{U}$ 58'00	36.26179 AU	minimum elong	-1746 Jul 26 j 14:45	17° $\mathring{U}$ 02'44	12°24'49
				retrograde	-1746 Nov 06 j 02:13	19° $\mathring{U}$ 19'17	
conjunction	-1754 Jul 11 j 05:47	2° $\mathring{U}$ 04'35	9°05'23	opposition	-1745 Jan 22 j 08:37	18° $\mathring{U}$ 02'35	13°22'39
minimum elong	-1754 Jul 11 j 05:28	2° $\mathring{U}$ 04'33	9°05'26	min. Earth dist.	-1745 Jan 25 j 09:02	17° $\mathring{U}$ 57'54	32.24144 AU
retrograde	-1754 Oct 21 j 10:24	4° $\mathring{U}$ 10'22		direct	-1745 Apr 13 j 06:29	16° $\mathring{U}$ 42'34	
opposition	-1753 Jan 07 j 08:44	2° $\mathring{U}$ 56'58	9°50'39	max. Earth dist.	-1745 Jul 25 j 15:02	18° $\mathring{U}$ 57'12	34.07549 AU
min. Earth dist.	-1753 Jan 10 j 10:30	2° $\mathring{U}$ 52'26	34.16139 AU				
direct	-1753 Mar 29 j 13:56	1° $\mathring{U}$ 40'41		conjunction	-1745 Jul 28 j 22:53	19° $\mathring{U}$ 04'09	12°47'51
max. Earth dist.	-1753 Jul 09 j 21:26	3° $\mathring{U}$ 43'47	36.00627 AU	minimum elong	-1745 Jul 28 j 22:30	19° $\mathring{U}$ 04'07	12°47'52
				retrograde	-1745 Nov 08 j 12:10	21° $\mathring{U}$ 22'05	
conjunction	-1753 Jul 13 j 07:30	3° $\mathring{U}$ 50'22	9°31'18	opposition	-1744 Jan 24 j 15:21	20° $\mathring{U}$ 04'58	13°47'09
minimum elong	-1753 Jul 13 j 07:11	3° $\mathring{U}$ 50'21	9°31'20	min. Earth dist.	-1744 Jan 27 j 15:04	20° $\mathring{U}$ 00'18	32.01606 AU
retrograde	-1753 Oct 23 j 11:28	5° $\mathring{U}$ 57'24		direct	-1744 Apr 14 j 12:38	18° $\mathring{U}$ 44'29	
opposition	-1752 Jan 09 j 08:53	4° $\mathring{U}$ 43'33	10°18'12	max. Earth dist.	-1744 Jul 27 j 00:26	21° $\mathring{U}$ 00'39	33.84845 AU
min. Earth dist.	-1752 Jan 12 j 10:54	4° $\mathring{U}$ 38'58	33.90961 AU				
direct	-1752 Mar 30 j 15:32	3° $\mathring{U}$ 26'46		conjunction	-1744 Jul 30 j 07:35	21° $\mathring{U}$ 07'37	13°10'19
max. Earth dist.	-1752 Jul 10 j 23:26	5° $\mathring{U}$ 31'10	35.75316 AU	minimum elong	-1744 Jul 30 j 07:10	21° $\mathring{U}$ 07'35	13°10'20
				retrograde	-1744 Nov 09 j 20:26	23° $\mathring{U}$ 26'57	
conjunction	-1752 Jul 14 j 09:44	5° $\mathring{U}$ 37'51	9°57'01	opposition	-1743 Jan 25 j 23:16	22° $\mathring{U}$ 09'26	14°10'59
minimum elong	-1752 Jul 14 j 09:23	5° $\mathring{U}$ 37'49	9°57'03	min. Earth dist.	-1743 Jan 28 j 23:21	22° $\mathring{U}$ 04'42	31.79396 AU
retrograde	-1752 Oct 24 j 15:30	7° $\mathring{U}$ 46'08		direct	-1743 Apr 16 j 19:07	20° $\mathring{U}$ 48'29	
opposition	-1751 Jan 10 j 09:46	6° $\mathring{U}$ 31'52	10°45'34	max. Earth dist.	-1743 Jul 29 j 10:27	23° $\mathring{U}$ 06'10	33.62516 AU
min. Earth dist.	-1751 Jan 13 j 10:57	6° $\mathring{U}$ 27'17	33.66076 AU				
direct	-1751 Apr 01 j 15:59	5° $\mathring{U}$ 14'34		conjunction	-1743 Aug 01 j 16:45	23° $\mathring{U}$ 13'08	13°32'07
max. Earth dist.	-1751 Jul 13 j 02:40	7° $\mathring{U}$ 20'21	35.50303 AU	minimum elong	-1743 Aug 01 j 16:22	23° $\mathring{U}$ 13'06	13°32'09
				retrograde	-1743 Nov 12 j 07:19	25° $\mathring{U}$ 33'52	
conjunction	-1751 Jul 16 j 12:38	7° $\mathring{U}$ 27'05	10°22'31	opposition	-1742 Jan 28 j 07:51	24° $\mathring{U}$ 15'55	14°34'06
minimum elong	-1751 Jul 16 j 12:17	7° $\mathring{U}$ 27'03	10°22'33	min. Earth dist.	-1742 Jan 31 j 06:26	24° $\mathring{U}$ 11'15	31.57582 AU
retrograde	-1751 Oct 26 j 17:14	9° $\mathring{U}$ 36'41		direct	-1742 Apr 19 j 02:49	22° $\mathring{U}$ 54'30	
opposition	-1750 Jan 12 j 11:36	8° $\mathring{U}$ 21'58	11°12'41	max. Earth dist.	-1742 Jul 31 j 20:55	25° $\mathring{U}$ 13'40	33.40603 AU
min. Earth dist.	-1750 Jan 15 j 13:23	8° $\mathring{U}$ 17'20	33.41531 AU				
direct	-1750 Apr 03 j 15:20	7° $\mathring{U}$ 04'13		conjunction	-1742 Aug 04 j 02:53	25° $\mathring{U}$ 20'40	13°53'11
max. Earth dist.	-1750 Jul 15 j 07:19	9° $\mathring{U}$ 11'27	35.25663 AU	minimum elong	-1742 Aug 04 j 02:28	25° $\mathring{U}$ 20'37	13°53'12
				retrograde	-1742 Nov 14 j 17:15	27° $\mathring{U}$ 42'48	
conjunction	-1750 Jul 18 j 16:19	9° $\mathring{U}$ 18'10	10°47'44	opposition	-1741 Jan 30 j 17:17	26° $\mathring{U}$ 24'25	14°56'24
minimum elong	-1750 Jul 18 j 15:57	9° $\mathring{U}$ 18'08	10°47'45	min. Earth dist.	-1741 Feb 02 j 16:16	26° $\mathring{U}$ 19'42	31.36228 AU
retrograde	-1750 Oct 28 j 20:54	11° $\mathring{U}$ 29'06		direct	-1741 Apr 21 j 08:59	25° $\mathring{U}$ 02'32	
opposition	-1749 Jan 14 j 13:54	10° $\mathring{U}$ 13'59	11°39'30	max. Earth dist.	-1741 Aug 03 j 09:41	27° $\mathring{U}$ 23'18	33.19201 AU
min. Earth dist.	-1749 Jan 17 j 14:26	10° $\mathring{U}$ 09'24	33.17369 AU				
direct	-1749 Apr 05 j 16:54	8° $\mathring{U}$ 55'46		conjunction	-1741 Aug 06 j 13:45	27° $\mathring{U}$ 30'12	14°13'25
max. Earth dist.	-1749 Jul 17 j 11:18	11° $\mathring{U}$ 04'23	35.01388 AU	minimum elong	-1741 Aug 06 j 13:22	27° $\mathring{U}$ 30'10	14°13'27
				retrograde	-1741 Nov 17 j 04:15	29° $\mathring{U}$ 53'43	
conjunction	-1749 Jul 20 j 20:50	11° $\mathring{U}$ 11'13	11°12'36	opposition	-1740 Feb 02 j 03:39	28° $\mathring{U}$ 34'56	15°17'47
minimum elong	-1749 Jul 20 j 20:29	11° $\mathring{U}$ 11'11	11°12'38	min. Earth dist.	-1740 Feb 05 j 00:47	28° $\mathring{U}$ 30'18	31.15411 AU
retrograde	-1749 Oct 31 j 02:47	13° $\mathring{U}$ 23'31		direct	-1740 Apr 22 j 19:34	27° $\mathring{U}$ 12'35	
opposition	-1748 Jan 16 j 17:16	12° $\mathring{U}$ 08'00	12°05'57	max. Earth dist.	-1740 Aug 04 j 21:27	29° $\mathring{U}$ 34'48	32.98382 AU
min. Earth dist.	-1748 Jan 19 j 18:29	12° $\mathring{U}$ 03'21	32.93580 AU				
direct	-1748 Apr 06 j 16:37	10° $\mathring{U}$ 49'20		conjunction	-1740 Aug 08 j 01:13	29° $\mathring{U}$ 41'44	14°32'44
max. Earth dist.	-1748 Jul 18 j 18:06	12° $\mathring{U}$ 59'32	34.77466 AU	minimum elong	-1740 Aug 08 j 00:49	29° $\mathring{U}$ 41'42	14°32'46
					-1740 Aug 16 j 09:16	0° $\mathring{J}$	
conjunction	-1748 Jul 22 j 02:10	13° $\mathring{U}$ 06'18	11°37'06	retrograde	-1740 Nov 18 j 17:17	2° $\mathring{J}$ 06'39	
minimum elong	-1748 Jul 22 j 01:46	13° $\mathring{U}$ 06'16	11°37'09	opposition	-1739 Feb 03 j 14:59	0° $\mathring{J}$ 47'26	15°38'09
retrograde	-1748 Nov 01 j 08:54	15° $\mathring{U}$ 20'00		min. Earth dist.	-1739 Feb 06 j 11:33	0° $\mathring{J}$ 42'50	30.95230 AU
opposition	-1747 Jan 17 j 21:28	14° $\mathring{U}$ 04'06	12°32'00		-1739 Mar 06 j 22:03	30° $\mathring{R}$ $\mathring{U}$	
min. Earth dist.	-1747 Jan 20 j 21:46	13° $\mathring{U}$ 59'28	32.70124 AU	direct	-1739 Apr 25 j 04:11	29° $\mathring{U}$ 24'39	
direct	-1747 Apr 08 j 20:14	12° $\mathring{U}$ 44'59			-1739 Jun 12 j 04:06	0° $\mathring{J}$	
max. Earth dist.	-1747 Jul 20 j 23:27	14° $\mathring{U}$ 56'35	34.53865 AU	max. Earth dist.	-1739 Aug 07 j 12:31	1° $\mathring{J}$ 48'32	32.78249 AU
conjunction	-1747 Jul 24 j 08:13	15° $\mathring{U}$ 03'29	12°01'11	conjunction	-1739 Aug 10 j 13:32	1° $\mathring{J}$ 55'17	14°51'02
minimum elong	-1747 Jul 24 j 07:50	15° $\mathring{U}$ 03'27	12°01'13	minimum elong	-1739 Aug 10 j 13:10	1° $\mathring{J}$ 55'15	14°51'04
retrograde	-1747 Nov 03 j 18:10	17° $\mathring{U}$ 18'35		retrograde	-1739 Nov 21 j 06:05	4° $\mathring{J}$ 21'34	
opposition	-1746 Jan 20 j 02:32	16° $\mathring{U}$ 02'17	12°57'35	opposition	-1738 Feb 06 j 03:11	3° $\mathring{J}$ 01'58	15°57'24



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 11

Attention, astronomical year style is used: The year -1738 in astronomical counting style is the year 1739 BCE in historical counting style.

min. Earth dist.	-1738 Feb 08 j 21:53	2° $\Omega$ 57'28	30.75754 AU	min. Earth dist.	-1730 Feb 27 j 18:21	22° $\Omega$ 06'33	29.47168 AU
direct	-1738 Apr 27 j 15:21	1° $\Omega$ 38'48		direct	-1730 May 16 j 14:46	20° $\Omega$ 44'47	
max. Earth dist.	-1738 Aug 10 j 02:06	4° $\Omega$ 04'08	32.58875 AU	max. Earth dist.	-1730 Aug 30 j 05:07	23° $\Omega$ 21'13	31.31761 AU
conjunction	-1738 Aug 13 j 02:25	4° $\Omega$ 10'52	15°08'14	conjunction	-1730 Sep 01 j 12:29	23° $\Omega$ 26'42	16°37'35
minimum elong	-1738 Aug 13 j 02:03	4° $\Omega$ 10'50	15°08'16	minimum elong	-1730 Sep 01 j 12:18	23° $\Omega$ 26'41	16°37'36
retrograde	-1738 Nov 23 j 22:17	6° $\Omega$ 38'32		retrograde	-1730 Dec 13 j 18:20	26° $\Omega$ 03'43	
opposition	-1737 Feb 08 j 16:14	5° $\Omega$ 18'34	16°15'26	opposition	-1729 Feb 28 j 07:54	24° $\Omega$ 41'25	17°46'59
min. Earth dist.	-1737 Feb 11 j 09:28	5° $\Omega$ 14'08	30.57049 AU	min. Earth dist.	-1729 Mar 02 j 11:16	24° $\Omega$ 37'49	29.34514 AU
direct	-1737 Apr 30 j 03:15	3° $\Omega$ 55'01		direct	-1729 May 19 j 10:32	23° $\Omega$ 15'38	
max. Earth dist.	-1737 Aug 12 j 18:50	6° $\Omega$ 22'01	32.40285 AU	max. Earth dist.	-1729 Sep 02 j 01:23	25° $\Omega$ 53'01	31.19468 AU
conjunction	-1737 Aug 15 j 16:19	6° $\Omega$ 28'33	15°24'15	conjunction	-1729 Sep 04 j 07:14	25° $\Omega$ 58'23	16°41'43
minimum elong	-1737 Aug 15 j 15:59	6° $\Omega$ 28'31	15°24'17	minimum elong	-1729 Sep 04 j 07:07	25° $\Omega$ 58'22	16°41'44
retrograde	-1737 Nov 26 j 13:18	8° $\Omega$ 57'33		retrograde	-1729 Dec 16 j 13:57	28° $\Omega$ 36'14	
opposition	-1736 Feb 11 j 06:13	7° $\Omega$ 37'16	16°32'11	opposition	-1728 Mar 02 j 04:05	27° $\Omega$ 13'40	17°50'44
min. Earth dist.	-1736 Feb 13 j 22:16	7° $\Omega$ 32'54	30.39111 AU	min. Earth dist.	-1728 Mar 04 j 05:27	27° $\Omega$ 10'12	29.22756 AU
direct	-1736 May 01 j 17:15	6° $\Omega$ 13'24		direct	-1728 May 21 j 05:13	25° $\Omega$ 47'40	
max. Earth dist.	-1736 Aug 14 j 10:27	8° $\Omega$ 41'50	32.22496 AU	max. Earth dist.	-1728 Sep 04 j 00:34	28° $\Omega$ 26'09	31.08139 AU
conjunction	-1736 Aug 17 j 06:47	8° $\Omega$ 48'19	15°39'01	conjunction	-1728 Sep 06 j 02:27	28° $\Omega$ 31'08	16°44'03
minimum elong	-1736 Aug 17 j 06:27	8° $\Omega$ 48'17	15°39'03	minimum elong	-1728 Sep 06 j 02:22	28° $\Omega$ 31'08	16°44'05
retrograde	-1736 Nov 28 j 06:35	11° $\Omega$ 18'39			-1728 Oct 15 j 06:40	0° $\eta$	
opposition	-1735 Feb 12 j 21:05	9° $\Omega$ 58'03	16°47'33	retrograde	-1728 Dec 18 j 09:00	1° $\eta$ 09'45	
min. Earth dist.	-1735 Feb 15 j 10:52	9° $\Omega$ 53'50	30.21955 AU		-1727 Feb 25 j 06:16	30° $\mathbb{R}$ $\Omega$	
direct	-1735 May 04 j 07:06	8° $\Omega$ 33'53		opposition	-1727 Mar 05 j 00:58	29° $\Omega$ 46'56	17°52'32
max. Earth dist.	-1735 Aug 17 j 04:05	11° $\Omega$ 03'52	32.05475 AU	min. Earth dist.	-1727 Mar 06 j 23:44	29° $\Omega$ 43'38	29.11961 AU
conjunction	-1735 Aug 19 j 22:02	11° $\Omega$ 10'10	15°52'28	direct	-1727 May 24 j 01:44	28° $\Omega$ 20'45	
minimum elong	-1735 Aug 19 j 21:45	11° $\Omega$ 10'08	15°52'29		-1727 Aug 12 j 05:22	0° $\eta$	
retrograde	-1735 Nov 30 j 23:01	13° $\Omega$ 41'47		max. Earth dist.	-1727 Sep 06 j 21:54	1° $\eta$ 00'02	30.97856 AU
opposition	-1734 Feb 15 j 12:58	12° $\Omega$ 20'54	17°01'29	conjunction	-1727 Sep 08 j 21:41	1° $\eta$ 04'50	16°44'33
min. Earth dist.	-1734 Feb 18 j 02:03	12° $\Omega$ 16'42	30.05535 AU	minimum elong	-1727 Sep 08 j 21:39	1° $\eta$ 04'50	16°44'33
direct	-1734 May 06 j 21:25	10° $\Omega$ 56'27		retrograde	-1727 Dec 21 j 06:19	3° $\eta$ 44'08	
max. Earth dist.	-1734 Aug 19 j 21:47	13° $\Omega$ 27'50	31.89217 AU	opposition	-1726 Mar 07 j 22:11	2° $\eta$ 21'06	17°52'17
conjunction	-1734 Aug 22 j 14:01	13° $\Omega$ 34'01	16°04'31	min. Earth dist.	-1726 Mar 09 j 17:45	2° $\eta$ 18'02	29.02228 AU
minimum elong	-1734 Aug 22 j 13:43	13° $\Omega$ 33'59	16°04'33	direct	-1726 May 26 j 21:38	0° $\eta$ 54'45	
	-1734 Sep 30 j 22:17	15° $\Omega$		max. Earth dist.	-1726 Sep 09 j 21:53	3° $\eta$ 35'00	30.88691 AU
retrograde	-1734 Dec 03 j 18:15	16° $\Omega$ 06'51		conjunction	-1726 Sep 11 j 17:29	3° $\eta$ 39'24	16°43'08
	-1733 Feb 09 j 13:03	15° $\mathbb{R}$ $\Omega$		minimum elong	-1726 Sep 11 j 17:28	3° $\eta$ 39'24	16°43'09
opposition	-1733 Feb 18 j 05:25	14° $\Omega$ 45'41	17°13'54	retrograde	-1726 Dec 24 j 02:16	6° $\eta$ 19'17	
min. Earth dist.	-1733 Feb 20 j 15:58	14° $\Omega$ 41'38	29.89843 AU	opposition	-1725 Mar 10 j 19:51	4° $\eta$ 56'04	17°49'59
direct	-1733 May 09 j 13:37	13° $\Omega$ 20'57		min. Earth dist.	-1725 Mar 12 j 13:00	4° $\eta$ 53'10	28.93601 AU
	-1733 Jul 29 j 23:20	15° $\Omega$		direct	-1725 May 29 j 19:41	3° $\eta$ 29'39	
max. Earth dist.	-1733 Aug 22 j 16:21	15° $\Omega$ 53'41	31.73689 AU	max. Earth dist.	-1725 Sep 12 j 20:17	6° $\eta$ 10'35	30.80706 AU
conjunction	-1733 Aug 25 j 06:50	15° $\Omega$ 59'45	16°15'08	conjunction	-1725 Sep 14 j 13:23	6° $\eta$ 14'44	16°39'46
minimum elong	-1733 Aug 25 j 06:36	15° $\Omega$ 59'43	16°15'09	minimum elong	-1725 Sep 14 j 13:26	6° $\eta$ 14'45	16°39'46
retrograde	-1733 Dec 06 j 10:53	18° $\Omega$ 33'45		retrograde	-1725 Dec 27 j 00:28	8° $\eta$ 55'08	
opposition	-1732 Feb 20 j 23:02	17° $\Omega$ 12'17	17°24'44	opposition	-1724 Mar 12 j 17:55	7° $\eta$ 31'48	17°45'33
min. Earth dist.	-1732 Feb 23 j 09:01	17° $\Omega$ 08'16	29.74870 AU	min. Earth dist.	-1724 Mar 14 j 07:03	7° $\eta$ 29'11	28.86130 AU
direct	-1732 May 11 j 04:38	15° $\Omega$ 47'17		direct	-1724 May 31 j 17:37	6° $\eta$ 05'20	
max. Earth dist.	-1732 Aug 24 j 12:11	18° $\Omega$ 21'21	31.58921 AU	max. Earth dist.	-1724 Sep 14 j 20:26	8° $\eta$ 47'02	30.73900 AU
conjunction	-1732 Aug 27 j 00:07	18° $\Omega$ 27'12	16°24'13	conjunction	-1724 Sep 16 j 09:29	8° $\eta$ 50'47	16°34'27
minimum elong	-1732 Aug 26 j 23:53	18° $\Omega$ 27'11	16°24'14	minimum elong	-1724 Sep 16 j 09:33	8° $\eta$ 50'48	16°34'28
retrograde	-1732 Dec 08 j 05:04	21° $\Omega$ 02'18		retrograde	-1724 Dec 28 j 21:09	11° $\eta$ 31'38	
opposition	-1731 Feb 22 j 17:20	19° $\Omega$ 40'33	17°33'54	opposition	-1723 Mar 15 j 16:30	10° $\eta$ 08'12	17°39'00
min. Earth dist.	-1731 Feb 25 j 00:31	19° $\Omega$ 36'43	29.60629 AU	min. Earth dist.	-1723 Mar 17 j 03:28	10° $\eta$ 05'44	28.79799 AU
direct	-1731 May 13 j 22:57	18° $\Omega$ 15'17		direct	-1723 Jun 03 j 14:53	8° $\eta$ 41'46	
max. Earth dist.	-1731 Aug 27 j 07:30	20° $\Omega$ 50'29	31.44925 AU	max. Earth dist.	-1723 Sep 17 j 19:41	11° $\eta$ 24'00	30.68274 AU
conjunction	-1731 Aug 29 j 18:03	20° $\Omega$ 56'15	16°31'44	conjunction	-1723 Sep 19 j 05:41	11° $\eta$ 27'27	16°27'10
minimum elong	-1731 Aug 29 j 17:52	20° $\Omega$ 56'14	16°31'44	minimum elong	-1723 Sep 19 j 05:49	11° $\eta$ 27'28	16°27'10
retrograde	-1731 Dec 11 j 00:08	23° $\Omega$ 32'21		retrograde	-1723 Dec 31 j 20:16	14° $\eta$ 08'37	
opposition	-1730 Feb 25 j 12:17	22° $\Omega$ 10'19	17°41'21	opposition	-1722 Mar 18 j 15:01	12° $\eta$ 45'09	17°30'19



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 12

Attention, astronomical year style is used: The year -1722 in astronomical counting style is the year 1723 BCE in historical counting style.

min. Earth dist.	-1722 Mar 19 j 21:56	12° $\mathring{M}$ 42'58	28.74591 AU	min. Earth dist.	-1714 Apr 09 j 12:23	3° $\mathring{A}$ 37'11	28.70532 AU
direct	-1722 Jun 06 j 14:10	11° $\mathring{M}$ 18'46		direct	-1714 Jun 28 j 03:07	2° $\mathring{A}$ 12'16	
max. Earth dist.	-1722 Sep 20 j 19:30	14° $\mathring{M}$ 01'29	30.63767 AU				
conjunction	-1722 Sep 22 j 02:04	14° $\mathring{M}$ 04'35	16°17'56	conjunction	-1714 Oct 12 j 14:56	4° $\mathring{A}$ 54'37	13°58'23
minimum elong	-1722 Sep 22 j 02:13	14° $\mathring{M}$ 04'36	16°17'58	minimum elong	-1714 Oct 12 j 15:19	4° $\mathring{A}$ 54'40	13°58'23
retrograde	-1721 Jan 03 j 17:14	16° $\mathring{M}$ 46'00		max. Earth dist.	-1714 Oct 12 j 10:56	4° $\mathring{A}$ 54'13	30.66275 AU
opposition	-1721 Mar 21 j 14:03	15° $\mathring{M}$ 22'31	17°19'34	retrograde	-1713 Jan 24 j 07:51	7° $\mathring{A}$ 33'56	
min. Earth dist.	-1721 Mar 22 j 19:00	15° $\mathring{M}$ 20'28	28.70459 AU	opposition	-1713 Apr 12 j 03:58	6° $\mathring{A}$ 10'43	14°43'11
direct	-1721 Jun 09 j 11:50	13° $\mathring{M}$ 56'12		min. Earth dist.	-1713 Apr 12 j 05:42	6° $\mathring{A}$ 10'36	28.74949 AU
				direct	-1713 Jul 01 j 00:36	4° $\mathring{A}$ 45'36	
conjunction	-1721 Sep 24 j 22:22	16° $\mathring{M}$ 42'02	16°06'47	conjunction	-1713 Oct 15 j 08:48	7° $\mathring{A}$ 27'04	13°33'27
minimum elong	-1721 Sep 24 j 22:34	16° $\mathring{M}$ 42'03	16°06'47	minimum elong	-1713 Oct 15 j 09:11	7° $\mathring{A}$ 27'06	13°33'26
max. Earth dist.	-1721 Sep 23 j 19:15	16° $\mathring{M}$ 39'16	30.60361 AU	max. Earth dist.	-1713 Oct 15 j 09:28	7° $\mathring{A}$ 27'08	30.71666 AU
retrograde	-1720 Jan 06 j 14:42	19° $\mathring{M}$ 23'33		retrograde	-1712 Jan 27 j 00:44	10° $\mathring{A}$ 05'43	
opposition	-1720 Mar 23 j 13:09	18° $\mathring{M}$ 00'04	17°06'45	opposition	-1712 Apr 14 j 01:31	8° $\mathring{A}$ 42'38	14°15'41
min. Earth dist.	-1720 Mar 24 j 14:02	17° $\mathring{M}$ 58'19	28.67368 AU	min. Earth dist.	-1712 Apr 14 j 00:27	8° $\mathring{A}$ 42'43	28.80573 AU
direct	-1720 Jun 11 j 11:42	16° $\mathring{M}$ 33'52		direct	-1712 Jul 02 j 21:25	7° $\mathring{A}$ 17'47	
conjunction	-1720 Sep 26 j 18:42	19° $\mathring{M}$ 19'34	15°53'46	conjunction	-1712 Oct 17 j 02:06	9° $\mathring{A}$ 58'17	13°07'06
minimum elong	-1720 Sep 26 j 18:56	19° $\mathring{M}$ 19'36	15°53'46	minimum elong	-1712 Oct 17 j 02:31	9° $\mathring{A}$ 58'20	13°07'06
max. Earth dist.	-1720 Sep 25 j 18:25	19° $\mathring{M}$ 17'06	30.58009 AU	max. Earth dist.	-1712 Oct 17 j 05:45	9° $\mathring{A}$ 58'39	30.78290 AU
retrograde	-1719 Jan 08 j 12:29	22° $\mathring{M}$ 01'07		retrograde	-1711 Jan 28 j 19:47	12° $\mathring{A}$ 36'12	
opposition	-1719 Mar 26 j 12:26	20° $\mathring{M}$ 37'38	16°51'55	opposition	-1711 Apr 16 j 22:20	11° $\mathring{A}$ 13'18	13°46'41
min. Earth dist.	-1719 Mar 27 j 11:01	20° $\mathring{M}$ 36'03	28.65311 AU	min. Earth dist.	-1711 Apr 16 j 16:36	11° $\mathring{A}$ 13'42	28.87406 AU
direct	-1719 Jun 14 j 09:14	19° $\mathring{M}$ 11'32		direct	-1711 Jul 05 j 19:51	9° $\mathring{A}$ 48'45	
conjunction	-1719 Sep 29 j 14:51	21° $\mathring{M}$ 56'59	15°38'53	conjunction	-1711 Oct 19 j 18:53	12° $\mathring{A}$ 28'15	12°39'24
minimum elong	-1719 Sep 29 j 15:06	21° $\mathring{M}$ 57'01	15°38'52	minimum elong	-1711 Oct 19 j 19:16	12° $\mathring{A}$ 28'17	12°39'23
max. Earth dist.	-1719 Sep 28 j 18:23	21° $\mathring{M}$ 54'54	30.56715 AU	max. Earth dist.	-1711 Oct 20 j 02:40	12° $\mathring{A}$ 29'01	30.86095 AU
retrograde	-1718 Jan 11 j 08:39	24° $\mathring{M}$ 38'25		retrograde	-1710 Jan 31 j 12:42	15° $\mathring{A}$ 05'22	
opposition	-1718 Mar 29 j 11:35	23° $\mathring{M}$ 14'58	16°35'06	opposition	-1710 Apr 19 j 18:50	13° $\mathring{A}$ 42'40	13°16'17
min. Earth dist.	-1718 Mar 30 j 06:29	23° $\mathring{M}$ 13'38	28.64255 AU	min. Earth dist.	-1710 Apr 19 j 10:35	13° $\mathring{A}$ 43'14	28.95392 AU
direct	-1718 Jun 17 j 09:08	21° $\mathring{M}$ 49'00		direct	-1710 Jul 08 j 16:01	12° $\mathring{A}$ 18'29	
conjunction	-1718 Oct 02 j 10:49	24° $\mathring{M}$ 34'03	15°22'11	conjunction	-1710 Oct 22 j 11:05	14° $\mathring{A}$ 56'53	12°10'28
minimum elong	-1718 Oct 02 j 11:06	24° $\mathring{M}$ 34'05	15°22'12	minimum elong	-1710 Oct 22 j 11:30	14° $\mathring{A}$ 56'56	12°10'27
max. Earth dist.	-1718 Oct 01 j 16:45	24° $\mathring{M}$ 32'13	30.56447 AU	max. Earth dist.	-1710 Oct 22 j 22:03	14° $\mathring{A}$ 57'58	30.95031 AU
retrograde	-1717 Jan 14 j 04:29	27° $\mathring{M}$ 15'16		retrograde	-1709 Feb 03 j 05:52	17° $\mathring{A}$ 33'09	
opposition	-1717 Apr 01 j 10:33	25° $\mathring{M}$ 51'50	16°16'21	opposition	-1709 Apr 22 j 14:34	16° $\mathring{A}$ 10'42	12°44'38
min. Earth dist.	-1717 Apr 02 j 02:42	25° $\mathring{M}$ 50'42	28.64221 AU	min. Earth dist.	-1709 Apr 22 j 02:03	16° $\mathring{A}$ 11'34	29.04461 AU
direct	-1717 Jun 20 j 07:11	24° $\mathring{M}$ 26'00		direct	-1709 Jul 11 j 13:09	14° $\mathring{A}$ 46'52	
conjunction	-1717 Oct 05 j 06:37	27° $\mathring{M}$ 10'33	15°03'45	conjunction	-1709 Oct 25 j 02:45	17° $\mathring{A}$ 24'09	11°40'25
minimum elong	-1717 Oct 05 j 06:55	27° $\mathring{M}$ 10'35	15°03'44	minimum elong	-1709 Oct 25 j 03:08	17° $\mathring{A}$ 24'12	11°40'24
max. Earth dist.	-1717 Oct 04 j 16:51	27° $\mathring{M}$ 09'09	30.57236 AU	max. Earth dist.	-1709 Oct 25 j 16:55	17° $\mathring{A}$ 25'33	31.05013 AU
retrograde	-1716 Jan 16 j 23:15	29° $\mathring{M}$ 51'26		retrograde	-1708 Feb 05 j 22:34	19° $\mathring{A}$ 59'32	
opposition	-1716 Apr 03 j 09:28	28° $\mathring{M}$ 28'02	15°55'44	opposition	-1708 Apr 24 j 10:04	18° $\mathring{A}$ 37'20	12°11'50
min. Earth dist.	-1716 Apr 03 j 22:21	28° $\mathring{M}$ 27'08	28.65217 AU	min. Earth dist.	-1708 Apr 23 j 19:01	18° $\mathring{A}$ 38'21	29.14564 AU
direct	-1716 Jun 22 j 06:22	27° $\mathring{M}$ 02'20		direct	-1708 Jul 13 j 08:31	17° $\mathring{A}$ 13'53	
conjunction	-1716 Oct 07 j 01:43	29° $\mathring{M}$ 46'15	14°43'35	conjunction	-1708 Oct 26 j 17:47	19° $\mathring{A}$ 49'58	11°09'21
minimum elong	-1716 Oct 07 j 02:04	29° $\mathring{M}$ 46'18	14°43'36	minimum elong	-1708 Oct 26 j 18:12	19° $\mathring{A}$ 50'01	11°09'20
max. Earth dist.	-1716 Oct 06 j 14:27	29° $\mathring{M}$ 45'07	30.59101 AU	max. Earth dist.	-1708 Oct 27 j 11:26	19° $\mathring{A}$ 51'42	31.15989 AU
retrograde	-1715 Jan 18 j 19:27	2° $\mathring{A}$ 26'43		retrograde	-1707 Feb 07 j 14:09	22° $\mathring{A}$ 24'24	
opposition	-1715 Apr 06 j 08:03	1° $\mathring{A}$ 03'21	15°33'17	min. Earth dist.	-1707 Apr 26 j 10:18	21° $\mathring{A}$ 03'42	29.25610 AU
min. Earth dist.	-1715 Apr 06 j 17:14	1° $\mathring{A}$ 02'42	28.67310 AU	opposition	-1707 Apr 27 j 04:48	21° $\mathring{A}$ 02'27	11°38'00
direct	-1715 May 18 j 20:57	30° $\mathring{R}$ $\mathring{M}$		direct	-1707 Jul 16 j 05:20	19° $\mathring{A}$ 39'24	
direct	-1715 Jun 25 j 03:54	29° $\mathring{M}$ 37'48		conjunction	-1707 Oct 29 j 08:13	22° $\mathring{A}$ 14'15	10°37'24
	-1715 Jul 31 j 09:31	0° $\mathring{A}$		minimum elong	-1707 Oct 29 j 08:36	22° $\mathring{A}$ 14'18	10°37'23
conjunction	-1715 Oct 09 j 20:39	2° $\mathring{A}$ 20'59	14°21'47	max. Earth dist.	-1707 Oct 30 j 04:10	22° $\mathring{A}$ 16'12	31.27867 AU
minimum elong	-1715 Oct 09 j 21:00	2° $\mathring{A}$ 21'02	14°21'46	retrograde	-1706 Feb 10 j 04:33	24° $\mathring{A}$ 47'41	
max. Earth dist.	-1715 Oct 09 j 14:02	2° $\mathring{A}$ 20'19	30.62097 AU	opposition	-1706 Apr 29 j 22:47	23° $\mathring{A}$ 26'01	11°03'17
retrograde	-1714 Jan 21 j 12:23	5° $\mathring{A}$ 00'54		min. Earth dist.	-1706 Apr 29 j 01:32	23° $\mathring{A}$ 27'26	29.37555 AU
opposition	-1714 Apr 09 j 06:11	3° $\mathring{A}$ 37'37	15°09'05	direct	-1706 Jul 18 j 22:40	22° $\mathring{A}$ 03'20	



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 13

Attention, astronomical year style is used: The year -1706 in astronomical counting style is the year 1707 BCE in historical counting style.

conjunction	-1706 Oct 31 j 22:11	24° <u>♂</u> 36'55	10°04'39	conjunction	-1698 Nov 18 j 09:47	12° <u>♂</u> 32'28	5°25'12
minimum elong	-1706 Oct 31 j 22:35	24° <u>♂</u> 36'57	10°04'38	minimum elong	-1698 Nov 18 j 10:01	12° <u>♂</u> 32'29	5°25'11
max. Earth dist.	-1706 Nov 01 j 21:46	24° <u>♂</u> 39'12	31.40604 AU	max. Earth dist.	-1698 Nov 20 j 06:22	12° <u>♂</u> 36'31	32.71804 AU
retrograde	-1705 Feb 12 j 16:48	27° <u>♂</u> 09'17		retrograde	-1697 Mar 02 j 05:30	14° <u>♂</u> 55'38	
opposition	-1705 May 02 j 16:15	25° <u>♂</u> 47'54	10°27'46	min. Earth dist.	-1697 May 19 j 09:49	13° <u>♂</u> 39'35	30.82459 AU
min. Earth dist.	-1705 May 01 j 16:23	25° <u>♂</u> 49'30	29.50326 AU	opposition	-1697 May 21 j 08:14	13° <u>♂</u> 36'37	5°27'10
direct	-1705 Jul 21 j 17:47	24° <u>♂</u> 25'36		direct	-1697 Aug 09 j 11:46	12° <u>♂</u> 17'35	
conjunction	-1705 Nov 03 j 11:09	26° <u>♂</u> 57'52	9°31'12	conjunction	-1697 Nov 20 j 17:00	14° <u>♂</u> 38'49	4°49'22
minimum elong	-1705 Nov 03 j 11:31	26° <u>♂</u> 57'54	9°31'12	minimum elong	-1697 Nov 20 j 17:12	14° <u>♂</u> 38'50	4°49'20
max. Earth dist.	-1705 Nov 04 j 12:27	27° <u>♂</u> 00'17	31.54143 AU	max. Earth dist.	-1697 Nov 22 j 16:44	14° <u>♂</u> 43'08	32.91756 AU
retrograde	-1704 Feb 15 j 06:46	29° <u>♂</u> 29'09			-1697 Nov 30 j 12:21	15° <u>♂</u>	
min. Earth dist.	-1704 May 03 j 05:43	28° <u>♂</u> 09'50	29.63916 AU	retrograde	-1696 Mar 03 j 11:39	17° <u>♂</u> 00'50	
opposition	-1704 May 04 j 09:00	28° <u>♂</u> 08'01	9°51'35	min. Earth dist.	-1696 May 20 j 18:25	15° <u>♂</u> 45'16	31.02526 AU
direct	-1704 Jul 23 j 09:50	26° <u>♂</u> 46'06		opposition	-1696 May 22 j 18:54	15° <u>♂</u> 42'11	4°48'54
conjunction	-1704 Nov 04 j 23:38	29° <u>♂</u> 17'00	8°57'10		-1696 Jun 20 j 21:36	15° <u>♂</u>	
minimum elong	-1704 Nov 04 j 23:59	29° <u>♂</u> 17'02	8°57'10	direct	-1696 Aug 11 j 01:08	14° <u>♂</u> 23'36	
max. Earth dist.	-1704 Nov 06 j 04:40	29° <u>♂</u> 19'46	31.68478 AU		-1696 Sep 28 j 16:37	15° <u>♂</u>	
	-1704 Nov 24 j 01:09	0° <u>♂</u>		conjunction	-1696 Nov 21 j 23:33	16° <u>♂</u> 43'30	4°13'35
retrograde	-1703 Feb 16 j 16:57	1° <u>♂</u> 47'09		minimum elong	-1696 Nov 21 j 23:44	16° <u>♂</u> 43'31	4°13'34
min. Earth dist.	-1703 May 05 j 19:46	0° <u>♂</u> 28'13	29.78307 AU	max. Earth dist.	-1696 Nov 24 j 00:28	16° <u>♂</u> 47'53	33.12305 AU
opposition	-1703 May 07 j 00:58	0° <u>♂</u> 26'17	9°14'48	retrograde	-1695 Mar 05 j 19:32	19° <u>♂</u> 04'22	
	-1703 May 23 j 20:35	30° <u>♂</u>		min. Earth dist.	-1695 May 23 j 01:28	17° <u>♂</u> 49'18	31.23190 AU
direct	-1703 Jul 26 j 02:56	29° <u>♂</u> 04'45		opposition	-1695 May 25 j 04:40	17° <u>♂</u> 46'03	4°10'45
	-1703 Sep 23 j 11:27	0° <u>♂</u>		direct	-1695 Aug 13 j 10:46	16° <u>♂</u> 27'56	
conjunction	-1703 Nov 07 j 11:08	1° <u>♂</u> 34'15	8°22'37	conjunction	-1695 Nov 24 j 05:37	18° <u>♂</u> 46'29	3°37'56
minimum elong	-1703 Nov 07 j 11:27	1° <u>♂</u> 34'16	8°22'36	minimum elong	-1695 Nov 24 j 05:45	18° <u>♂</u> 46'30	3°37'54
max. Earth dist.	-1703 Nov 08 j 17:53	1° <u>♂</u> 37'09	31.83613 AU	max. Earth dist.	-1695 Nov 26 j 09:23	18° <u>♂</u> 51'05	33.33374 AU
retrograde	-1702 Feb 19 j 04:54	4° <u>♂</u> 03'15		retrograde	-1694 Mar 07 j 22:59	21° <u>♂</u> 06'12	
min. Earth dist.	-1702 May 08 j 07:03	2° <u>♂</u> 44'49	29.93531 AU	min. Earth dist.	-1694 May 25 j 09:45	19° <u>♂</u> 51'32	31.44342 AU
opposition	-1702 May 09 j 16:03	2° <u>♂</u> 42'38	8°37'33	opposition	-1694 May 27 j 13:51	19° <u>♂</u> 48'15	3°32'49
direct	-1702 Jul 28 j 17:51	1° <u>♂</u> 21'28		direct	-1694 Aug 15 j 21:06	18° <u>♂</u> 30'33	
conjunction	-1702 Nov 09 j 21:56	3° <u>♂</u> 49'35	7°47'39	conjunction	-1694 Nov 26 j 10:51	20° <u>♂</u> 47'46	3°02'28
minimum elong	-1702 Nov 09 j 22:15	3° <u>♂</u> 49'37	7°47'38	minimum elong	-1694 Nov 26 j 10:59	20° <u>♂</u> 47'47	3°02'26
max. Earth dist.	-1702 Nov 11 j 08:26	3° <u>♂</u> 52'49	31.99564 AU	max. Earth dist.	-1694 Nov 28 j 15:20	20° <u>♂</u> 52'24	33.54876 AU
retrograde	-1701 Feb 21 j 14:33	6° <u>♂</u> 17'25		retrograde	-1693 Mar 10 j 04:15	23° <u>♂</u> 06'20	
min. Earth dist.	-1701 May 10 j 19:38	4° <u>♂</u> 59'22	30.09611 AU	min. Earth dist.	-1693 May 27 j 15:21	21° <u>♂</u> 52'09	31.65921 AU
opposition	-1701 May 12 j 06:29	4° <u>♂</u> 57'05	7°59'54	opposition	-1693 May 29 j 22:14	21° <u>♂</u> 48'43	2°55'08
direct	-1701 Jul 31 j 07:22	3° <u>♂</u> 36'19		direct	-1693 Aug 18 j 05:08	20° <u>♂</u> 31'26	
conjunction	-1701 Nov 12 j 07:58	6° <u>♂</u> 03'01	7°12'21	conjunction	-1693 Nov 28 j 15:38	22° <u>♂</u> 47'20	2°27'15
minimum elong	-1701 Nov 12 j 08:16	6° <u>♂</u> 03'02	7°12'19	minimum elong	-1693 Nov 28 j 15:43	22° <u>♂</u> 47'20	2°27'13
max. Earth dist.	-1701 Nov 13 j 20:43	6° <u>♂</u> 06'26	32.16381 AU	max. Earth dist.	-1693 Nov 30 j 22:30	22° <u>♂</u> 52'08	33.76746 AU
retrograde	-1700 Feb 24 j 01:33	8° <u>♂</u> 29'41		retrograde	-1692 Mar 11 j 08:19	25° <u>♂</u> 04'45	
min. Earth dist.	-1700 May 12 j 05:11	7° <u>♂</u> 12'11	30.26574 AU	min. Earth dist.	-1692 May 28 j 22:33	23° <u>♂</u> 50'54	31.87876 AU
opposition	-1700 May 13 j 20:04	7° <u>♂</u> 09'39	7°21'56	opposition	-1692 May 31 j 06:03	23° <u>♂</u> 47'26	2°17'47
direct	-1700 Aug 01 j 22:09	5° <u>♂</u> 49'17		direct	-1692 Aug 19 j 11:55	22° <u>♂</u> 30'33	
conjunction	-1700 Nov 13 j 17:13	8° <u>♂</u> 14'36	6°36'47	conjunction	-1692 Nov 29 j 19:38	24° <u>♂</u> 45'07	1°52'20
minimum elong	-1700 Nov 13 j 17:30	8° <u>♂</u> 14'38	6°36'45	minimum elong	-1692 Nov 29 j 19:43	24° <u>♂</u> 45'07	1°52'18
max. Earth dist.	-1700 Nov 15 j 09:04	8° <u>♂</u> 18'17	32.34047 AU	max. Earth dist.	-1692 Dec 02 j 03:37	24° <u>♂</u> 49'58	33.98961 AU
retrograde	-1699 Feb 25 j 12:06	10° <u>♂</u> 40'07		retrograde	-1691 Mar 13 j 12:41	27° <u>♂</u> 01'22	
min. Earth dist.	-1699 May 14 j 16:03	9° <u>♂</u> 23'02	30.44409 AU	min. Earth dist.	-1691 May 31 j 02:59	25° <u>♂</u> 47'57	32.10171 AU
opposition	-1699 May 16 j 08:59	9° <u>♂</u> 20'23	6°43'46	opposition	-1691 Jun 02 j 12:56	25° <u>♂</u> 44'22	1°40'47
direct	-1699 Aug 04 j 11:17	8° <u>♂</u> 00'27		direct	-1691 Aug 21 j 20:02	24° <u>♂</u> 27'51	
conjunction	-1699 Nov 16 j 01:55	10° <u>♂</u> 24'24	6°01'02	conjunction	-1691 Dec 01 j 22:58	26° <u>♂</u> 41'06	1°17'45
minimum elong	-1699 Nov 16 j 02:09	10° <u>♂</u> 24'25	6°01'01	minimum elong	-1691 Dec 01 j 23:01	26° <u>♂</u> 41'06	1°17'42
max. Earth dist.	-1699 Nov 17 j 20:24	10° <u>♂</u> 28'18	32.52549 AU	max. Earth dist.	-1691 Dec 04 j 08:26	26° <u>♂</u> 46'02	34.21487 AU
retrograde	-1698 Feb 27 j 21:18	12° <u>♂</u> 48'44		retrograde	-1690 Mar 15 j 17:09	28° <u>♂</u> 56'12	
min. Earth dist.	-1698 May 17 j 00:48	11° <u>♂</u> 32'11	30.63053 AU	min. Earth dist.	-1690 Jun 02 j 08:04	27° <u>♂</u> 43'07	32.32831 AU
opposition	-1698 May 18 j 20:50	11° <u>♂</u> 29'21	6°05'29	opposition	-1690 Jun 04 j 19:03	27° <u>♂</u> 39'29	1°04'12
direct	-1698 Aug 07 j 00:54	10° <u>♂</u> 09'52		direct	-1690 Aug 24 j 02:04	26° <u>♂</u> 23'20	



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 14

Attention, astronomical year style is used: The year -1690 in astronomical counting style is the year 1691 BCE in historical counting style.

conjunction	-1690 Dec 04 j 01:40	28° $\mathbb{M}$ 35'18	0°43'32	opposition	-1682 Jun 19 j 19:56	12° $\mathbb{Z}$ 03'30	-3°-29'-27
minimum elong	-1690 Dec 04 j 01:41	28° $\mathbb{M}$ 35'18	0°43'31	direct	-1682 Sep 08 j 05:25	10° $\mathbb{Z}$ 50'29	
max. Earth dist.	-1690 Dec 06 j 13:09	28° $\mathbb{M}$ 40'22	34.44377 AU				
	-1689 Jan 17 j 22:21	0° $\mathbb{Z}$		conjunction	-1682 Dec 18 j 01:16	12° $\mathbb{Z}$ 53'20	-3°-32'-43
retrograde	-1689 Mar 17 j 19:21	0° $\mathbb{Z}$ 49'15		minimum elong	-1682 Dec 18 j 01:09	12° $\mathbb{Z}$ 53'20	3°32'45
	-1689 May 19 j 02:43	30° $\mathbb{R}$ $\mathbb{M}$		max. Earth dist.	-1682 Dec 20 j 22:55	12° $\mathbb{Z}$ 58'55	36.40247 AU
min. Earth dist.	-1689 Jun 04 j 11:46	29° $\mathbb{M}$ 36'32	32.55876 AU	retrograde	-1681 Mar 31 j 20:21	14° $\mathbb{Z}$ 59'12	
opposition	-1689 Jun 07 j 00:29	29° $\mathbb{M}$ 32'49	0°28'04	min. Earth dist.	-1681 Jun 18 j 20:50	13° $\mathbb{Z}$ 49'39	34.53308 AU
direct	-1689 Aug 26 j 09:28	28° $\mathbb{M}$ 17'02		opposition	-1681 Jun 21 j 20:27	13° $\mathbb{Z}$ 45'27	-4°00'-55
	-1689 Nov 22 j 09:09	0° $\mathbb{Z}$		direct	-1681 Sep 10 j 06:06	12° $\mathbb{Z}$ 32'48	
conjunction	-1689 Dec 06 j 03:27	0° $\mathbb{Z}$ 27'44	0°09'47	conjunction	-1681 Dec 19 j 23:01	14° $\mathbb{Z}$ 34'38	-4°-2'-14
minimum elong	-1689 Dec 06 j 03:27	0° $\mathbb{Z}$ 27'44	0°09'45	minimum elong	-1681 Dec 19 j 22:53	14° $\mathbb{Z}$ 34'38	4°02'17
behind sun begin	-1689 Dec 05 j 22:11	0° $\mathbb{Z}$ 27'19		max. Earth dist.	-1681 Dec 22 j 22:23	14° $\mathbb{Z}$ 40'19	36.65578 AU
behind sun end	-1689 Dec 06 j 08:43	0° $\mathbb{Z}$ 28'09		retrograde	-1680 Apr 01 j 16:22	16° $\mathbb{Z}$ 39'33	
max. Earth dist.	-1689 Dec 08 j 15:58	0° $\mathbb{Z}$ 32'51	34.67650 AU	min. Earth dist.	-1680 Jun 19 j 20:54	15° $\mathbb{Z}$ 30'18	34.78760 AU
retrograde	-1688 Mar 18 j 21:31	2° $\mathbb{Z}$ 40'35		opposition	-1680 Jun 22 j 20:23	15° $\mathbb{Z}$ 26'08	-4°-31'-43
desc. node	-1688 Mar 21 j 18:04	2° $\mathbb{Z}$ 40'27		direct	-1680 Sep 11 j 08:40	14° $\mathbb{Z}$ 13'50	
min. Earth dist.	-1688 Jun 05 j 14:26	1° $\mathbb{Z}$ 28'17	32.79361 AU				
opposition	-1688 Jun 08 j 05:19	1° $\mathbb{Z}$ 24'27	0°-7'-34	conjunction	-1680 Dec 20 j 20:16	16° $\mathbb{Z}$ 14'38	-4°-31'-9
direct	-1688 Aug 27 j 14:09	0° $\mathbb{Z}$ 09'02		minimum elong	-1680 Dec 20 j 20:07	16° $\mathbb{Z}$ 14'38	4°31'11
				max. Earth dist.	-1680 Dec 23 j 19:09	16° $\mathbb{Z}$ 20'14	36.90892 AU
conjunction	-1688 Dec 07 j 04:55	2° $\mathbb{Z}$ 18'31	0°-23'-37	retrograde	-1679 Apr 03 j 13:28	18° $\mathbb{Z}$ 18'37	
minimum elong	-1688 Dec 07 j 04:54	2° $\mathbb{Z}$ 18'31	0°23'39	min. Earth dist.	-1679 Jun 21 j 18:26	17° $\mathbb{Z}$ 09'43	35.04203 AU
max. Earth dist.	-1688 Dec 09 j 20:08	2° $\mathbb{Z}$ 23'49	34.91343 AU	opposition	-1679 Jun 24 j 19:30	17° $\mathbb{Z}$ 05'29	-5°-1'-52
retrograde	-1687 Mar 20 j 20:20	4° $\mathbb{Z}$ 30'16		direct	-1679 Sep 13 j 08:07	15° $\mathbb{Z}$ 53'30	
min. Earth dist.	-1687 Jun 07 j 17:26	3° $\mathbb{Z}$ 18'20	33.03272 AU				
opposition	-1687 Jun 10 j 09:15	3° $\mathbb{Z}$ 14'28	0°-42'-41	conjunction	-1679 Dec 22 j 17:01	17° $\mathbb{Z}$ 53'18	-4°-59'-28
direct	-1687 Aug 29 j 20:42	1° $\mathbb{Z}$ 59'26		minimum elong	-1679 Dec 22 j 16:52	17° $\mathbb{Z}$ 53'17	4°59'31
				max. Earth dist.	-1679 Dec 25 j 17:20	17° $\mathbb{Z}$ 58'58	37.16177 AU
conjunction	-1687 Dec 09 j 05:36	4° $\mathbb{Z}$ 07'44	0°-56'-28	retrograde	-1678 Apr 05 j 07:54	19° $\mathbb{Z}$ 56'22	
minimum elong	-1687 Dec 09 j 05:34	4° $\mathbb{Z}$ 07'44	0°56'31	min. Earth dist.	-1678 Jun 23 j 17:42	18° $\mathbb{Z}$ 47'41	35.29639 AU
max. Earth dist.	-1687 Dec 11 j 21:19	4° $\mathbb{Z}$ 13'02	35.15445 AU	opposition	-1678 Jun 26 j 18:16	18° $\mathbb{Z}$ 43'29	-5°-31'-20
retrograde	-1686 Mar 22 j 21:28	6° $\mathbb{Z}$ 18'26		direct	-1678 Sep 15 j 08:12	17° $\mathbb{Z}$ 31'49	
min. Earth dist.	-1686 Jun 09 j 18:08	5° $\mathbb{Z}$ 06'59	33.27600 AU				
opposition	-1686 Jun 12 j 12:35	5° $\mathbb{Z}$ 02'58	-1°-17'-14	conjunction	-1678 Dec 24 j 13:06	19° $\mathbb{Z}$ 30'36	-5°-27'-9
direct	-1686 Aug 31 j 23:56	3° $\mathbb{Z}$ 48'20		minimum elong	-1678 Dec 24 j 12:56	19° $\mathbb{Z}$ 30'36	5°27'12
				max. Earth dist.	-1678 Dec 27 j 13:38	19° $\mathbb{Z}$ 36'15	37.41472 AU
conjunction	-1686 Dec 11 j 05:43	5° $\mathbb{Z}$ 55'29	-1°-28'-49	retrograde	-1677 Apr 07 j 04:15	21° $\mathbb{Z}$ 32'45	
minimum elong	-1686 Dec 11 j 05:40	5° $\mathbb{Z}$ 55'29	1°28'51	min. Earth dist.	-1677 Jun 25 j 14:13	20° $\mathbb{Z}$ 24'24	35.55109 AU
max. Earth dist.	-1686 Dec 13 j 23:51	6° $\mathbb{Z}$ 00'57	35.39912 AU	opposition	-1677 Jun 28 j 16:20	20° $\mathbb{Z}$ 20'08	-6°00'-7
retrograde	-1685 Mar 24 j 20:33	8° $\mathbb{Z}$ 05'11		direct	-1677 Sep 17 j 06:01	19° $\mathbb{Z}$ 08'46	
min. Earth dist.	-1685 Jun 11 j 20:35	6° $\mathbb{Z}$ 54'05	33.52288 AU				
opposition	-1685 Jun 14 j 15:26	6° $\mathbb{Z}$ 50'04	-1°-51'-13	conjunction	-1677 Dec 26 j 08:44	21° $\mathbb{Z}$ 06'34	-5°-54'-13
direct	-1685 Sep 03 j 02:51	5° $\mathbb{Z}$ 35'51		minimum elong	-1677 Dec 26 j 08:33	21° $\mathbb{Z}$ 06'34	5°54'17
				max. Earth dist.	-1677 Dec 29 j 10:08	21° $\mathbb{Z}$ 12'14	37.66810 AU
conjunction	-1685 Dec 13 j 05:22	7° $\mathbb{Z}$ 41'52	-2°00'-38	retrograde	-1676 Apr 08 j 01:09	23° $\mathbb{Z}$ 07'50	
minimum elong	-1685 Dec 13 j 05:17	7° $\mathbb{Z}$ 41'52	2°00'41	min. Earth dist.	-1676 Jun 26 j 11:33	21° $\mathbb{Z}$ 59'43	35.80677 AU
max. Earth dist.	-1685 Dec 16 j 00:18	7° $\mathbb{Z}$ 47'22	35.64708 AU	opposition	-1676 Jun 29 j 13:57	21° $\mathbb{Z}$ 55'28	-6°-28'-12
retrograde	-1684 Mar 25 j 21:15	9° $\mathbb{Z}$ 50'35		direct	-1676 Sep 18 j 01:45	20° $\mathbb{Z}$ 44'23	
min. Earth dist.	-1684 Jun 12 j 20:27	8° $\mathbb{Z}$ 39'56	33.77281 AU				
opposition	-1684 Jun 15 j 17:30	8° $\mathbb{Z}$ 35'50	-2°-24'-36	conjunction	-1676 Dec 27 j 04:01	22° $\mathbb{Z}$ 41'15	-6°-20'-38
direct	-1684 Sep 04 j 04:14	7° $\mathbb{Z}$ 22'01		minimum elong	-1676 Dec 27 j 03:51	22° $\mathbb{Z}$ 41'14	6°20'41
				max. Earth dist.	-1676 Dec 30 j 06:45	22° $\mathbb{Z}$ 46'59	37.92256 AU
conjunction	-1684 Dec 14 j 04:25	9° $\mathbb{Z}$ 26'57	-2°-31'-54	retrograde	-1675 Apr 09 j 20:03	24° $\mathbb{Z}$ 41'38	
minimum elong	-1684 Dec 14 j 04:19	9° $\mathbb{Z}$ 26'57	2°31'57	min. Earth dist.	-1675 Jun 28 j 07:40	23° $\mathbb{Z}$ 33'49	36.06346 AU
max. Earth dist.	-1684 Dec 17 j 00:46	9° $\mathbb{Z}$ 32'31	35.89742 AU	opposition	-1675 Jul 01 j 10:54	23° $\mathbb{Z}$ 29'32	-6°-55'-36
retrograde	-1683 Mar 27 j 22:49	11° $\mathbb{Z}$ 34'43		direct	-1675 Sep 20 j 00:11	22° $\mathbb{Z}$ 18'46	
min. Earth dist.	-1683 Jun 14 j 21:34	10° $\mathbb{Z}$ 24'25	34.02505 AU				
opposition	-1683 Jun 17 j 19:08	10° $\mathbb{Z}$ 20'18	-2°-57'-21	conjunction	-1675 Dec 28 j 22:41	24° $\mathbb{Z}$ 14'43	-6°-46'-25
direct	-1683 Sep 06 j 03:21	9° $\mathbb{Z}$ 06'53		minimum elong	-1675 Dec 28 j 22:30	24° $\mathbb{Z}$ 14'42	6°46'28
				max. Earth dist.	-1674 Jan 01 j 01:17	24° $\mathbb{Z}$ 20'23	38.17801 AU
conjunction	-1683 Dec 16 j 03:09	11° $\mathbb{Z}$ 10'47	-3°-2'-36	retrograde	-1674 Apr 11 j 16:06	26° $\mathbb{Z}$ 14'15	
minimum elong	-1683 Dec 16 j 03:03	11° $\mathbb{Z}$ 10'46	3°02'40	min. Earth dist.	-1674 Jun 30 j 02:52	25° $\mathbb{Z}$ 06'46	36.32139 AU
max. Earth dist.	-1683 Dec 19 j 00:44	11° $\mathbb{Z}$ 16'23	36.14951 AU	opposition	-1674 Jul 03 j 07:21	25° $\mathbb{Z}$ 02'26	-7°-22'-18
retrograde	-1682 Mar 29 j 20:55	13° $\mathbb{Z}$ 17'34		direct	-1674 Sep 21 j 20:08	23° $\mathbb{Z}$ 51'58	
min. Earth dist.	-1682 Jun 16 j 21:24	12° $\mathbb{Z}$ 07'39	34.27862 AU				



Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 15

Attention, astronomical year style is used: The year -1674 in astronomical counting style is the year 1675 BCE in historical counting style.

conjunction	-1674 Dec 30 j 17:08	25° $\mathring{A}$ 47'03	-7°-11'-33	direct	-1666 Oct 04 j 03:40	5° $\mathring{B}$ 42'37	
minimum elong	-1674 Dec 30 j 16:56	25° $\mathring{A}$ 47'02	7°11'35				
max. Earth dist.	-1673 Jan 02 j 21:32	25° $\mathring{A}$ 52'50	38.43453 AU	conjunction	-1665 Jan 11 j 07:25	7° $\mathring{B}$ 31'28	-10°-10'-5
retrograde	-1673 Apr 13 j 09:15	27° $\mathring{A}$ 45'46		minimum elong	-1665 Jan 11 j 07:13	7° $\mathring{B}$ 31'27	10°10'09
min. Earth dist.	-1673 Jul 01 j 23:14	26° $\mathring{A}$ 38'33	36.58018 AU	max. Earth dist.	-1665 Jan 14 j 12:19	7° $\mathring{B}$ 37'00	40.45924 AU
opposition	-1673 Jul 05 j 03:29	26° $\mathring{A}$ 34'15	-7°-48'-17	retrograde	-1665 Apr 24 j 21:38	9° $\mathring{B}$ 24'22	
direct	-1673 Sep 23 j 17:36	25° $\mathring{A}$ 24'06		min. Earth dist.	-1665 Jul 13 j 23:17	8° $\mathring{B}$ 19'16	38.61534 AU
				opposition	-1665 Jul 17 j 04:48	8° $\mathring{B}$ 15'02	-10°-52'-6
conjunction	-1672 Jan 01 j 10:58	27° $\mathring{A}$ 18'20	-7°-36'-2	direct	-1665 Oct 05 j 21:39	7° $\mathring{B}$ 07'14	
minimum elong	-1672 Jan 01 j 10:46	27° $\mathring{A}$ 18'19	7°36'05				
max. Earth dist.	-1672 Jan 04 j 15:08	27° $\mathring{A}$ 24'03	38.69174 AU	conjunction	-1664 Jan 12 j 22:30	8° $\mathring{B}$ 55'22	-10°-29'-42
retrograde	-1672 Apr 14 j 02:11	29° $\mathring{A}$ 16'16		minimum elong	-1664 Jan 12 j 22:17	8° $\mathring{B}$ 55'21	10°29'45
min. Earth dist.	-1672 Jul 02 j 17:14	28° $\mathring{A}$ 09'25	36.83946 AU	max. Earth dist.	-1664 Jan 16 j 03:44	9° $\mathring{B}$ 00'53	40.70310 AU
opposition	-1672 Jul 05 j 23:05	28° $\mathring{A}$ 05'03	-8°-13'-35	retrograde	-1664 Apr 25 j 14:24	10° $\mathring{B}$ 47'35	
direct	-1672 Sep 24 j 13:55	26° $\mathring{A}$ 55'14		min. Earth dist.	-1664 Jul 14 j 16:22	9° $\mathring{B}$ 42'39	38.86074 AU
				opposition	-1664 Jul 17 j 21:14	9° $\mathring{B}$ 38'28	-11°-12'-11
conjunction	-1671 Jan 02 j 04:37	28° $\mathring{A}$ 48'38	-7°-59'-53	direct	-1664 Oct 06 j 12:48	8° $\mathring{B}$ 30'55	
minimum elong	-1671 Jan 02 j 04:25	28° $\mathring{A}$ 48'37	7°59'55				
max. Earth dist.	-1671 Jan 05 j 09:56	28° $\mathring{A}$ 54'24	38.94895 AU	conjunction	-1663 Jan 13 j 13:30	10° $\mathring{B}$ 18'21	-10°-48'-43
	-1671 Feb 14 j 02:27	0° $\mathring{B}$		minimum elong	-1663 Jan 13 j 13:18	10° $\mathring{B}$ 18'20	10°48'46
retrograde	-1671 Apr 15 j 19:23	0° $\mathring{B}$ 45'49		max. Earth dist.	-1663 Jan 16 j 19:11	10° $\mathring{B}$ 23'52	40.94569 AU
	-1671 Jun 18 j 15:09	30° $\mathring{R}$ $\mathring{A}$		retrograde	-1663 Apr 27 j 05:04	12° $\mathring{B}$ 09'54	
min. Earth dist.	-1671 Jul 04 j 13:02	29° $\mathring{A}$ 39'12	37.09857 AU	min. Earth dist.	-1663 Jul 16 j 07:51	11° $\mathring{B}$ 05'12	39.10486 AU
opposition	-1671 Jul 07 j 18:13	29° $\mathring{A}$ 34'53	-8°-38'-12	opposition	-1663 Jul 19 j 12:56	11° $\mathring{B}$ 01'01	-11°-31'-38
direct	-1671 Sep 26 j 09:22	28° $\mathring{A}$ 25'24		direct	-1663 Oct 08 j 04:25	9° $\mathring{B}$ 53'42	
	-1671 Dec 24 j 17:58	0° $\mathring{B}$					
conjunction	-1670 Jan 03 j 21:57	0° $\mathring{B}$ 18'01	-8°-23'-6	conjunction	-1662 Jan 15 j 03:58	11° $\mathring{B}$ 40'28	-11°-7'-8
minimum elong	-1670 Jan 03 j 21:44	0° $\mathring{B}$ 18'00	8°23'09	minimum elong	-1662 Jan 15 j 03:45	11° $\mathring{B}$ 40'28	11°07'10
max. Earth dist.	-1670 Jan 07 j 03:20	0° $\mathring{B}$ 23'45	39.20567 AU	max. Earth dist.	-1662 Jan 18 j 08:58	11° $\mathring{B}$ 45'54	41.18718 AU
retrograde	-1670 Apr 17 j 13:24	2° $\mathring{B}$ 14'27		retrograde	-1662 Apr 28 j 21:26	13° $\mathring{B}$ 31'23	
min. Earth dist.	-1670 Jul 06 j 07:00	1° $\mathring{B}$ 08'10	37.35670 AU	min. Earth dist.	-1662 Jul 17 j 23:01	12° $\mathring{B}$ 26'55	39.34813 AU
opposition	-1670 Jul 09 j 12:55	1° $\mathring{B}$ 03'50	-9°-2'-8	opposition	-1662 Jul 21 j 04:32	12° $\mathring{B}$ 22'44	-11°-50'-27
	-1670 Sep 08 j 01:28	30° $\mathring{R}$ $\mathring{A}$		direct	-1662 Oct 09 j 18:29	11° $\mathring{B}$ 15'40	
direct	-1670 Sep 28 j 03:20	29° $\mathring{A}$ 54'40		conjunction	-1661 Jan 16 j 18:08	13° $\mathring{B}$ 01'48	-11°-24'-58
	-1670 Oct 17 j 21:49	0° $\mathring{B}$		minimum elong	-1661 Jan 16 j 17:56	13° $\mathring{B}$ 01'47	11°25'01
				max. Earth dist.	-1661 Jan 20 j 00:27	13° $\mathring{B}$ 07'17	41.42777 AU
conjunction	-1669 Jan 05 j 14:44	1° $\mathring{B}$ 46'30	-8°-45'-42	retrograde	-1661 Apr 30 j 10:10	14° $\mathring{B}$ 52'05	
minimum elong	-1669 Jan 05 j 14:32	1° $\mathring{B}$ 46'29	8°45'45	min. Earth dist.	-1661 Jul 19 j 14:59	13° $\mathring{B}$ 47'48	39.59030 AU
max. Earth dist.	-1669 Jan 08 j 19:57	1° $\mathring{B}$ 52'11	39.46095 AU	opposition	-1661 Jul 22 j 19:49	13° $\mathring{B}$ 43'41	-12°-8'-39
retrograde	-1669 Apr 19 j 08:08	3° $\mathring{B}$ 42'14		direct	-1661 Oct 11 j 11:13	12° $\mathring{B}$ 36'52	
min. Earth dist.	-1669 Jul 08 j 01:40	2° $\mathring{B}$ 36'12	37.61332 AU				
opposition	-1669 Jul 11 j 07:26	2° $\mathring{B}$ 31'54	-9°-25'-24	conjunction	-1660 Jan 18 j 08:03	14° $\mathring{B}$ 22'23	-11°-42'-13
direct	-1669 Sep 29 j 20:18	1° $\mathring{B}$ 23'02		minimum elong	-1660 Jan 18 j 07:51	14° $\mathring{B}$ 22'22	11°42'14
				max. Earth dist.	-1660 Jan 21 j 13:28	14° $\mathring{B}$ 27'47	41.66730 AU
conjunction	-1668 Jan 07 j 07:31	3° $\mathring{B}$ 14'07	-9°-7'-42	retrograde	-1660 Apr 30 j 23:57	16° $\mathring{B}$ 12'04	
minimum elong	-1668 Jan 07 j 07:18	3° $\mathring{B}$ 14'06	9°07'44	min. Earth dist.	-1660 Jul 20 j 04:45	15° $\mathring{B}$ 08'05	39.83125 AU
max. Earth dist.	-1668 Jan 10 j 13:33	3° $\mathring{B}$ 19'50	39.71436 AU	opposition	-1660 Jul 23 j 10:35	15° $\mathring{B}$ 03'55	-12°-26'-13
retrograde	-1668 Apr 20 j 00:30	5° $\mathring{B}$ 09'08		direct	-1660 Oct 12 j 01:59	13° $\mathring{B}$ 57'22	
min. Earth dist.	-1668 Jul 08 j 20:06	4° $\mathring{B}$ 03'20	37.86761 AU				
opposition	-1668 Jul 12 j 01:21	3° $\mathring{B}$ 59'04	-9°-48'-2	conjunction	-1659 Jan 18 j 21:44	15° $\mathring{B}$ 42'16	-11°-58'-53
direct	-1668 Sep 30 j 15:10	2° $\mathring{B}$ 50'30		minimum elong	-1659 Jan 18 j 21:33	15° $\mathring{B}$ 42'15	11°58'56
				max. Earth dist.	-1659 Jan 22 j 03:42	15° $\mathring{B}$ 47'41	41.90527 AU
conjunction	-1667 Jan 07 j 23:50	4° $\mathring{B}$ 40'50	-9°-29'-5	retrograde	-1659 May 02 j 11:58	17° $\mathring{B}$ 31'23	
minimum elong	-1667 Jan 07 j 23:38	4° $\mathring{B}$ 40'50	9°29'08	min. Earth dist.	-1659 Jul 21 j 20:40	16° $\mathring{B}$ 27'34	40.07042 AU
max. Earth dist.	-1667 Jan 11 j 04:36	4° $\mathring{B}$ 46'25	39.96524 AU	opposition	-1659 Jul 25 j 01:12	16° $\mathring{B}$ 23'29	-12°-43'-12
retrograde	-1667 Apr 21 j 17:43	6° $\mathring{B}$ 35'08		direct	-1659 Oct 13 j 18:19	15° $\mathring{B}$ 17'12	
min. Earth dist.	-1667 Jul 10 j 13:05	5° $\mathring{B}$ 29'36	38.11933 AU				
opposition	-1667 Jul 13 j 18:56	5° $\mathring{B}$ 25'20	-10°-10'-1	conjunction	-1658 Jan 20 j 11:13	17° $\mathring{B}$ 01'30	-12°-15'00
direct	-1667 Oct 02 j 08:40	4° $\mathring{B}$ 17'02		minimum elong	-1658 Jan 20 j 11:01	17° $\mathring{B}$ 01'29	12°15'03
				max. Earth dist.	-1658 Jan 23 j 16:55	17° $\mathring{B}$ 06'52	42.14127 AU
conjunction	-1666 Jan 09 j 15:49	6° $\mathring{B}$ 06'38	-9°-49'-53	retrograde	-1658 May 04 j 01:31	18° $\mathring{B}$ 50'03	
minimum elong	-1666 Jan 09 j 15:36	6° $\mathring{B}$ 06'37	9°49'56	min. Earth dist.	-1658 Jul 23 j 10:30	17° $\mathring{B}$ 46'29	40.30713 AU
max. Earth dist.	-1666 Jan 12 j 21:23	6° $\mathring{B}$ 12'14	40.21339 AU	opposition	-1658 Jul 26 j 15:20	17° $\mathring{B}$ 42'24	-12°-59'-36
retrograde	-1666 Apr 23 j 07:14	8° $\mathring{B}$ 00'13		direct	-1658 Oct 15 j 08:52	16° $\mathring{B}$ 36'22	
min. Earth dist.	-1666 Jul 12 j 07:31	6° $\mathring{B}$ 54'51	38.36839 AU				
opposition	-1666 Jul 15 j 12:06	6° $\mathring{B}$ 50'40	-10°-31'-23	conjunction	-1657 Jan 22 j 00:23	18° $\mathring{B}$ 20'06	-12°-30'-35



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 16

Attention, astronomical year style is used: The year -1657 in astronomical counting style is the year 1658 BCE in historical counting style.

minimum elong	-1657 Jan 22 j 00:12	18° $\overline{20}$ '05	12°30'39	retrograde	-1649 May 15 j 15:25	0° $\approx$ 07'14	
max. Earth dist.	-1657 Jan 25 j 05:17	18° $\overline{25}$ '23	42.37451 AU		-1649 Jun 09 j 20:46	30° $\overline{R}$ $\overline{2}$	
retrograde	-1657 May 05 j 17:50	20° $\overline{20}$ '08	40.54097 AU	min. Earth dist.	-1649 Aug 04 j 10:59	29° $\overline{20}$ '45	42.28552 AU
min. Earth dist.	-1657 Jul 25 j 01:14	19° $\overline{20}$ '42	-13°-15'-26	opposition	-1649 Aug 07 j 10:22	29° $\overline{20}$ '18	-15°-3'-13
opposition	-1657 Jul 28 j 05:24	19° $\overline{20}$ '41	-13°-15'-26	direct	-1649 Oct 27 j 03:56	27° $\overline{20}$ '57	00
direct	-1657 Oct 16 j 19:50	17° $\overline{20}$ '54	53				
conjunction	-1656 Jan 23 j 13:31	19° $\overline{20}$ '38	03	conjunction	-1648 Feb 02 j 12:28	29° $\overline{20}$ '35	56 -14°-28'-12
minimum elong	-1656 Jan 23 j 13:20	19° $\overline{20}$ '38	02	minimum elong	-1648 Feb 02 j 12:21	29° $\overline{20}$ '35	56 14°28'15
max. Earth dist.	-1656 Jan 26 j 18:43	19° $\overline{20}$ '43	19	max. Earth dist.	-1648 Feb 05 j 13:32	29° $\overline{20}$ '40	44.32252 AU
retrograde	-1656 May 06 j 06:23	21° $\overline{20}$ '25	30		-1648 Feb 17 j 22:20	0° $\approx$	
min. Earth dist.	-1656 Jul 25 j 16:00	20° $\overline{20}$ '22	15	retrograde	-1648 May 16 j 00:43	1° $\approx$ 19'12	
opposition	-1656 Jul 28 j 19:06	20° $\overline{20}$ '18	18	min. Earth dist.	-1648 Aug 04 j 21:43	0° $\approx$ 17'10	42.49244 AU
direct	-1656 Oct 17 j 10:27	19° $\overline{20}$ '12	43	opposition	-1648 Aug 07 j 21:41	0° $\approx$ 13'28	-15°-14'-21
					-1648 Aug 18 j 21:02	30° $\overline{R}$ $\overline{2}$	
conjunction	-1655 Jan 24 j 02:23	20° $\overline{20}$ '55	20	direct	-1648 Oct 27 j 16:49	29° $\overline{20}$ '09	22
minimum elong	-1655 Jan 24 j 02:11	20° $\overline{20}$ '55	19		-1647 Jan 02 j 03:16	0° $\approx$	
max. Earth dist.	-1655 Jan 27 j 05:48	21° $\overline{20}$ '00	27	conjunction	-1647 Feb 02 j 23:17	0° $\approx$ 47'53	-14°-38'-48
retrograde	-1655 May 07 j 19:20	22° $\overline{20}$ '42	12	minimum elong	-1647 Feb 02 j 23:09	0° $\approx$ 47'52	14°38'50
min. Earth dist.	-1655 Jul 27 j 05:17	21° $\overline{20}$ '39	09	max. Earth dist.	-1647 Feb 06 j 00:10	0° $\approx$ 52'38	44.52664 AU
opposition	-1655 Jul 30 j 08:22	21° $\overline{20}$ '35	13	retrograde	-1647 May 17 j 11:54	2° $\approx$ 30'42	
direct	-1655 Oct 18 j 23:28	20° $\overline{20}$ '29	50	min. Earth dist.	-1647 Aug 06 j 10:08	1° $\approx$ 28'49	42.69703 AU
				opposition	-1647 Aug 09 j 08:46	1° $\approx$ 25'11	-15°-24'-59
conjunction	-1654 Jan 25 j 14:59	22° $\overline{20}$ '11	53	direct	-1647 Oct 29 j 04:16	0° $\approx$ 21'18	
minimum elong	-1654 Jan 25 j 14:49	22° $\overline{20}$ '11	52				
max. Earth dist.	-1654 Jan 28 j 18:40	22° $\overline{20}$ '17	00	conjunction	-1646 Feb 04 j 10:01	1° $\approx$ 59'23	-14°-48'-56
retrograde	-1654 May 09 j 05:51	23° $\overline{20}$ '58	12	minimum elong	-1646 Feb 04 j 09:54	1° $\approx$ 59'22	14°48'59
min. Earth dist.	-1654 Jul 28 j 20:09	22° $\overline{20}$ '55	14	max. Earth dist.	-1646 Feb 07 j 10:50	2° $\approx$ 04'07	44.72834 AU
opposition	-1654 Jul 31 j 21:34	22° $\overline{20}$ '51	23	retrograde	-1646 May 18 j 22:36	3° $\approx$ 41'47	
direct	-1654 Oct 20 j 14:32	21° $\overline{20}$ '46	11	min. Earth dist.	-1646 Aug 07 j 21:14	2° $\approx$ 40'06	42.89871 AU
				opposition	-1646 Aug 10 j 19:38	2° $\approx$ 36'29	-15°-35'-9
conjunction	-1653 Jan 27 j 03:09	23° $\overline{20}$ '27	40	direct	-1646 Oct 30 j 15:13	1° $\approx$ 32'49	
minimum elong	-1653 Jan 27 j 02:58	23° $\overline{20}$ '27	39				
max. Earth dist.	-1653 Jan 30 j 05:51	23° $\overline{20}$ '32	42	conjunction	-1645 Feb 05 j 20:18	3° $\approx$ 10'29	-14°-58'-37
retrograde	-1653 May 10 j 16:24	25° $\overline{20}$ '13	26	minimum elong	-1645 Feb 05 j 20:11	3° $\approx$ 10'29	14°58'39
min. Earth dist.	-1653 Jul 30 j 08:31	24° $\overline{20}$ '10	39	max. Earth dist.	-1645 Feb 08 j 19:37	3° $\approx$ 15'06	44.92688 AU
opposition	-1653 Aug 02 j 10:18	24° $\overline{20}$ '06	47	retrograde	-1645 May 20 j 12:23	4° $\approx$ 52'29	
direct	-1653 Oct 22 j 04:51	23° $\overline{20}$ '01	45	min. Earth dist.	-1645 Aug 09 j 08:39	3° $\approx$ 50'57	43.09704 AU
				opposition	-1645 Aug 12 j 06:24	3° $\approx$ 47'24	-15°-44'-51
conjunction	-1652 Jan 28 j 15:05	24° $\overline{20}$ '42	41	direct	-1645 Oct 31 j 22:50	2° $\approx$ 43'56	
minimum elong	-1652 Jan 28 j 14:56	24° $\overline{20}$ '42	40				
max. Earth dist.	-1652 Jan 31 j 17:12	24° $\overline{20}$ '47	39	conjunction	-1644 Feb 07 j 06:48	4° $\approx$ 21'12	-15°-7'-53
retrograde	-1652 May 11 j 04:59	26° $\overline{20}$ '27	55	minimum elong	-1644 Feb 07 j 06:42	4° $\approx$ 21'12	15°07'56
min. Earth dist.	-1652 Jul 30 j 22:05	25° $\overline{20}$ '25	13	max. Earth dist.	-1644 Feb 10 j 06:25	4° $\approx$ 25'49	45.12168 AU
opposition	-1652 Aug 02 j 22:45	25° $\overline{20}$ '21	26	retrograde	-1644 May 20 j 22:57	6° $\approx$ 02'47	
direct	-1652 Oct 22 j 17:12	24° $\overline{20}$ '16	34	min. Earth dist.	-1644 Aug 09 j 20:49	5° $\approx$ 01'21	43.29116 AU
				opposition	-1644 Aug 12 j 16:50	4° $\approx$ 57'53	-15°-54'-6
conjunction	-1651 Jan 29 j 02:55	25° $\overline{20}$ '56	58	direct	-1644 Nov 01 j 09:03	3° $\approx$ 54'36	
minimum elong	-1651 Jan 29 j 02:44	25° $\overline{20}$ '56	57				
max. Earth dist.	-1651 Feb 01 j 05:24	26° $\overline{20}$ '01	55	conjunction	-1643 Feb 07 j 17:05	5° $\approx$ 31'29	-15°-16'-43
retrograde	-1651 May 12 j 17:12	27° $\overline{20}$ '41	40	minimum elong	-1643 Feb 07 j 16:59	5° $\approx$ 31'28	15°16'45
min. Earth dist.	-1651 Aug 01 j 10:33	26° $\overline{20}$ '39	06	max. Earth dist.	-1643 Feb 10 j 14:47	5° $\approx$ 35'57	45.31219 AU
opposition	-1651 Aug 04 j 10:50	26° $\overline{20}$ '35	21	retrograde	-1643 May 22 j 08:22	7° $\approx$ 12'39	
direct	-1651 Oct 24 j 04:49	25° $\overline{20}$ '30	40	min. Earth dist.	-1643 Aug 11 j 07:00	6° $\approx$ 11'23	43.48075 AU
				opposition	-1643 Aug 14 j 03:04	6° $\approx$ 07'56	-16°-2'-57
conjunction	-1650 Jan 30 j 14:13	27° $\overline{20}$ '10	33	direct	-1643 Nov 02 j 19:13	5° $\approx$ 04'49	
minimum elong	-1650 Jan 30 j 14:04	27° $\overline{20}$ '10	33				
max. Earth dist.	-1650 Feb 02 j 15:29	27° $\overline{20}$ '15	24	conjunction	-1642 Feb 09 j 03:02	6° $\approx$ 41'17	-15°-25'-10
retrograde	-1650 May 14 j 06:31	28° $\overline{20}$ '54	45	minimum elong	-1642 Feb 09 j 02:56	6° $\approx$ 41'16	15°25'13
min. Earth dist.	-1650 Aug 02 j 22:06	27° $\overline{20}$ '52	22	max. Earth dist.	-1642 Feb 12 j 00:08	6° $\approx$ 45'42	45.49798 AU
opposition	-1650 Aug 05 j 22:43	27° $\overline{20}$ '48	37	retrograde	-1642 May 23 j 15:23	8° $\approx$ 22'02	
direct	-1650 Oct 25 j 14:39	26° $\overline{20}$ '44	07	min. Earth dist.	-1642 Aug 12 j 19:08	7° $\approx$ 20'49	43.66567 AU
				opposition	-1642 Aug 15 j 13:14	7° $\approx$ 17'28	-16°-11'-22
conjunction	-1649 Feb 01 j 01:29	28° $\overline{20}$ '23	31	direct	-1642 Nov 04 j 08:32	6° $\approx$ 14'30	
minimum elong	-1649 Feb 01 j 01:19	28° $\overline{20}$ '23	31				
max. Earth dist.	-1649 Feb 04 j 03:30	28° $\overline{20}$ '28	24	conjunction	-1641 Feb 10 j 12:57	7° $\approx$ 50'33	-15°-33'-13
	-1649 Apr 20 j 16:09	0° $\approx$		minimum elong	-1641 Feb 10 j 12:52	7° $\approx$ 50'33	15°33'15



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 17

Attention, astronomical year style is used: The year -1641 in astronomical counting style is the year 1642 BCE in historical counting style.

max. Earth dist.	-1641 Feb 13 j 09:23	7° $\approx$ 54'55	45.67948 AU	conjunction	-1633 Feb 19 j 12:57	16° $\approx$ 46'34	-16°-22'-59
retrograde	-1641 May 25 j 00:15	9° $\approx$ 30'53		minimum elong	-1633 Feb 19 j 12:56	16° $\approx$ 46'34	16°23'02
min. Earth dist.	-1641 Aug 14 j 05:10	8° $\approx$ 29'47	43.84631 AU	max. Earth dist.	-1633 Feb 22 j 03:30	16° $\approx$ 50'26	47.02022 AU
opposition	-1641 Aug 16 j 22:58	8° $\approx$ 26'27	-16°-19'-23	retrograde	-1633 Jun 03 j 02:45	18° $\approx$ 23'55	
direct	-1641 Nov 05 j 20:03	7° $\approx$ 23'38		min. Earth dist.	-1633 Aug 23 j 09:52	17° $\approx$ 23'42	45.18319 AU
				opposition	-1633 Aug 25 j 22:07	17° $\approx$ 20'43	-17°-8'-20
conjunction	-1640 Feb 11 j 22:29	8° $\approx$ 59'15	-15°-40'-51	direct	-1633 Nov 14 j 16:08	16° $\approx$ 19'02	
minimum elong	-1640 Feb 11 j 22:23	8° $\approx$ 59'15	15°40'54				
max. Earth dist.	-1640 Feb 14 j 17:27	9° $\approx$ 03'30	45.85696 AU	conjunction	-1632 Feb 20 j 21:29	17° $\approx$ 51'54	-16°-27'-29
retrograde	-1640 May 25 j 11:59	10° $\approx$ 39'10		minimum elong	-1632 Feb 20 j 21:27	17° $\approx$ 51'54	16°27'31
min. Earth dist.	-1640 Aug 14 j 15:43	9° $\approx$ 38'09	44.02334 AU	max. Earth dist.	-1632 Feb 23 j 11:36	17° $\approx$ 55'44	47.17361 AU
opposition	-1640 Aug 17 j 08:37	9° $\approx$ 34'53	-16°-26'-58	retrograde	-1632 Jun 03 j 08:59	19° $\approx$ 28'57	
direct	-1640 Nov 06 j 03:47	8° $\approx$ 32'11		min. Earth dist.	-1632 Aug 23 j 20:19	18° $\approx$ 28'47	45.33503 AU
				opposition	-1632 Aug 26 j 06:23	18° $\approx$ 25'55	-17°-12'-42
conjunction	-1639 Feb 12 j 08:01	10° $\approx$ 07'24	-15°-48'-5	direct	-1632 Nov 15 j 02:06	17° $\approx$ 24'23	
minimum elong	-1639 Feb 12 j 07:57	10° $\approx$ 07'24	15°48'07				
max. Earth dist.	-1639 Feb 15 j 03:18	10° $\approx$ 11'39	46.03111 AU	conjunction	-1631 Feb 21 j 06:00	18° $\approx$ 56'58	-16°-31'-39
retrograde	-1639 May 26 j 21:02	11° $\approx$ 46'54		minimum elong	-1631 Feb 21 j 05:59	18° $\approx$ 56'58	16°31'41
min. Earth dist.	-1639 Aug 16 j 02:03	10° $\approx$ 45'57	44.19712 AU	max. Earth dist.	-1631 Feb 23 j 18:43	19° $\approx$ 00'42	47.32228 AU
opposition	-1639 Aug 18 j 17:50	10° $\approx$ 42'45	-16°-34'-8	retrograde	-1631 Jun 04 j 15:03	20° $\approx$ 33'42	
direct	-1639 Nov 07 j 13:25	9° $\approx$ 40'10		min. Earth dist.	-1631 Aug 25 j 04:37	19° $\approx$ 33'39	45.48178 AU
				opposition	-1631 Aug 27 j 14:16	19° $\approx$ 30'48	-17°-16'-43
conjunction	-1638 Feb 13 j 17:12	11° $\approx$ 15'00	-15°-54'-54	direct	-1631 Nov 16 j 12:11	18° $\approx$ 29'24	
minimum elong	-1638 Feb 13 j 17:07	11° $\approx$ 15'00	15°54'57				
max. Earth dist.	-1638 Feb 16 j 10:55	11° $\approx$ 19'08	46.20246 AU	conjunction	-1630 Feb 22 j 14:13	20° $\approx$ 01'42	-16°-35'-29
retrograde	-1638 May 28 j 06:13	12° $\approx$ 54'05		minimum elong	-1630 Feb 22 j 14:12	20° $\approx$ 01'41	16°35'30
min. Earth dist.	-1638 Aug 17 j 10:55	11° $\approx$ 53'17	44.36833 AU	max. Earth dist.	-1630 Feb 25 j 01:12	20° $\approx$ 05'18	47.46577 AU
opposition	-1638 Aug 20 j 02:58	11° $\approx$ 50'05	-16°-40'-52	retrograde	-1630 Jun 06 j 00:17	21° $\approx$ 38'07	
direct	-1638 Nov 08 j 21:33	10° $\approx$ 47'38		min. Earth dist.	-1630 Aug 26 j 14:20	20° $\approx$ 38'07	45.62345 AU
				opposition	-1630 Aug 28 j 22:17	20° $\approx$ 35'21	-17°-20'-25
conjunction	-1637 Feb 15 j 02:07	12° $\approx$ 22'06	-16°-1'-19	direct	-1630 Nov 17 j 19:59	19° $\approx$ 34'04	
minimum elong	-1637 Feb 15 j 02:05	12° $\approx$ 22'06	16°01'21				
max. Earth dist.	-1637 Feb 17 j 20:02	12° $\approx$ 26'14	46.37128 AU	conjunction	-1629 Feb 23 j 22:20	21° $\approx$ 06'04	-16°-39'00
retrograde	-1637 May 29 j 13:31	14° $\approx$ 00'49		minimum elong	-1629 Feb 23 j 22:19	21° $\approx$ 06'04	16°39'02
min. Earth dist.	-1637 Aug 18 j 21:33	13° $\approx$ 00'04	44.53703 AU	max. Earth dist.	-1629 Feb 26 j 09:03	21° $\approx$ 09'39	47.60434 AU
opposition	-1637 Aug 21 j 12:03	12° $\approx$ 56'56	-16°-47'-10	retrograde	-1629 Jun 07 j 08:05	22° $\approx$ 42'11	
direct	-1637 Nov 10 j 07:38	11° $\approx$ 54'38		min. Earth dist.	-1629 Aug 27 j 23:13	21° $\approx$ 42'14	45.76012 AU
				opposition	-1629 Aug 30 j 05:59	21° $\approx$ 39'32	-17°-23'-47
conjunction	-1636 Feb 16 j 11:07	13° $\approx$ 28'45	-16°-7'-19	direct	-1629 Nov 19 j 04:19	20° $\approx$ 38'21	
minimum elong	-1636 Feb 16 j 11:03	13° $\approx$ 28'45	16°07'21				
max. Earth dist.	-1636 Feb 19 j 04:26	13° $\approx$ 32'50	46.53780 AU	conjunction	-1628 Feb 25 j 06:16	22° $\approx$ 10'03	-16°-42'-11
	-1636 May 04 j 15:19	15° $\approx$		minimum elong	-1628 Feb 25 j 06:16	22° $\approx$ 10'03	16°42'13
retrograde	-1636 May 29 j 20:19	15° $\approx$ 07'06		max. Earth dist.	-1628 Feb 27 j 14:50	22° $\approx$ 13'29	47.73828 AU
	-1636 Jun 24 j 11:03	15° $\approx$		retrograde	-1628 Jun 07 j 17:57	23° $\approx$ 45'51	
min. Earth dist.	-1636 Aug 19 j 05:58	14° $\approx$ 06'31	44.70319 AU	min. Earth dist.	-1628 Aug 28 j 07:09	22° $\approx$ 45'58	45.89254 AU
opposition	-1636 Aug 21 j 20:40	14° $\approx$ 03'23	-16°-53'-3	opposition	-1628 Aug 30 j 13:23	22° $\approx$ 43'19	-17°-26'-48
direct	-1636 Nov 10 j 18:24	13° $\approx$ 01'14		direct	-1628 Nov 19 j 09:13	21° $\approx$ 42'14	
conjunction	-1635 Feb 16 j 19:50	14° $\approx$ 35'01	-16°-12'-55	conjunction	-1627 Feb 25 j 14:07	23° $\approx$ 13'39	-16°-45'-3
minimum elong	-1635 Feb 16 j 19:48	14° $\approx$ 35'01	16°12'58	minimum elong	-1627 Feb 25 j 14:07	23° $\approx$ 13'39	16°45'06
max. Earth dist.	-1635 Feb 19 j 11:54	14° $\approx$ 39'00	46.70167 AU	max. Earth dist.	-1627 Feb 27 j 22:36	23° $\approx$ 17'04	47.86816 AU
	-1635 Mar 05 j 17:46	15° $\approx$		retrograde	-1627 Jun 09 j 00:50	24° $\approx$ 49'08	
retrograde	-1635 May 31 j 06:35	16° $\approx$ 13'01		min. Earth dist.	-1627 Aug 29 j 16:25	23° $\approx$ 49'16	46.02112 AU
min. Earth dist.	-1635 Aug 20 j 15:45	15° $\approx$ 12'33	44.86665 AU	opposition	-1627 Aug 31 j 20:46	23° $\approx$ 46'42	-17°-29'-29
opposition	-1635 Aug 23 j 05:22	15° $\approx$ 09'28	-16°-58'-32	direct	-1627 Nov 20 j 16:52	22° $\approx$ 45'43	
	-1635 Aug 31 j 04:06	15° $\approx$					
direct	-1635 Nov 12 j 02:28	14° $\approx$ 07'29		conjunction	-1626 Feb 26 j 21:40	24° $\approx$ 16'52	-16°-47'-34
	-1634 Jan 20 j 17:55	15° $\approx$		minimum elong	-1626 Feb 26 j 21:41	24° $\approx$ 16'52	16°47'36
				max. Earth dist.	-1626 Mar 01 j 05:03	24° $\approx$ 20'13	47.99468 AU
conjunction	-1634 Feb 18 j 04:26	15° $\approx$ 40'56	-16°-18'-9	retrograde	-1626 Jun 10 j 05:28	25° $\approx$ 52'04	
minimum elong	-1634 Feb 18 j 04:23	15° $\approx$ 40'56	16°18'11	min. Earth dist.	-1626 Aug 30 j 23:16	24° $\approx$ 52'19	46.14644 AU
max. Earth dist.	-1634 Feb 20 j 20:50	15° $\approx$ 44'56	46.86266 AU	opposition	-1626 Sep 02 j 03:54	24° $\approx$ 49'45	-17°-31'-49
retrograde	-1634 Jun 01 j 16:14	17° $\approx$ 18'37		direct	-1626 Nov 22 j 01:54	23° $\approx$ 48'52	
min. Earth dist.	-1634 Aug 22 j 01:18	16° $\approx$ 18'15	45.02677 AU				
opposition	-1634 Aug 24 j 13:50	16° $\approx$ 15'14	-17°-3'-38	conjunction	-1625 Feb 28 j 05:07	25° $\approx$ 19'45	-16°-49'-45
direct	-1634 Nov 13 j 10:00	15° $\approx$ 13'24		minimum elong	-1625 Feb 28 j 05:08	25° $\approx$ 19'45	16°49'47
				max. Earth dist.	-1625 Mar 02 j 11:20	25° $\approx$ 23'01	48.11809 AU



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 18

Attention, astronomical year style is used: The year -1625 in astronomical counting style is the year 1626 BCE in historical counting style.

retrograde	-1625 Jun 11 j 12:07	26° $\approx$ 54'40		minimum elong	-1617 Mar 08 j 14:29	3° $\times$ 33'59	16°55'45
min. Earth dist.	-1625 Sep 01 j 07:54	25° $\approx$ 54'58	46.26887 AU	max. Earth dist.	-1617 Mar 10 j 12:29	3° $\times$ 36'41	48.97871 AU
opposition	-1625 Sep 03 j 11:00	25° $\approx$ 52'28	-17°-33'-47	retrograde	-1617 Jun 19 j 22:27	5° $\times$ 06'57	
direct	-1625 Nov 23 j 10:44	24° $\approx$ 51'42		min. Earth dist.	-1617 Sep 09 j 21:29	4° $\times$ 07'39	47.11338 AU
				opposition	-1617 Sep 11 j 15:15	4° $\times$ 05'39	-17°-37'-58
conjunction	-1624 Feb 29 j 12:39	26° $\approx$ 22'20	-16°-51'-35	direct	-1617 Dec 01 j 14:01	3° $\times$ 05'37	
minimum elong	-1624 Feb 29 j 12:42	26° $\approx$ 22'20	16°51'37				
max. Earth dist.	-1624 Mar 02 j 19:01	26° $\approx$ 25'36	48.23876 AU	conjunction	-1616 Mar 08 j 21:13	4° $\times$ 34'33	-16°-55'-11
retrograde	-1624 Jun 11 j 20:14	27° $\approx$ 56'59		minimum elong	-1616 Mar 08 j 21:18	4° $\times$ 34'33	16°55'14
min. Earth dist.	-1624 Sep 01 j 15:25	26° $\approx$ 57'23	46.38828 AU	max. Earth dist.	-1616 Mar 10 j 17:36	4° $\times$ 37'09	49.06546 AU
opposition	-1624 Sep 03 j 17:54	26° $\approx$ 54'55	-17°-35'-25	retrograde	-1616 Jun 20 j 03:49	6° $\times$ 07'16	
direct	-1624 Nov 23 j 17:49	25° $\approx$ 54'15		min. Earth dist.	-1616 Sep 10 j 03:36	5° $\times$ 08'02	47.19777 AU
				opposition	-1616 Sep 11 j 21:12	5° $\times$ 06'02	-17°-37'-11
conjunction	-1623 Mar 01 j 19:54	27° $\approx$ 24'39	-16°-53'-6	direct	-1616 Dec 01 j 20:09	4° $\times$ 06'03	
minimum elong	-1623 Mar 01 j 19:55	27° $\approx$ 24'39	16°53'07				
max. Earth dist.	-1623 Mar 04 j 00:20	27° $\approx$ 27'47	48.35646 AU	conjunction	-1615 Mar 10 j 03:48	5° $\times$ 34'46	-16°-54'-22
retrograde	-1623 Jun 13 j 06:26	28° $\approx$ 59'03		minimum elong	-1615 Mar 10 j 03:53	5° $\times$ 34'46	16°54'24
min. Earth dist.	-1623 Sep 02 j 22:34	27° $\approx$ 59'33	46.50473 AU	max. Earth dist.	-1615 Mar 11 j 22:50	5° $\times$ 37'17	49.14790 AU
opposition	-1623 Sep 05 j 00:37	27° $\approx$ 57'07	-17°-36'-41	retrograde	-1615 Jun 21 j 07:45	7° $\times$ 07'15	
direct	-1623 Nov 24 j 21:34	26° $\approx$ 56'34		min. Earth dist.	-1615 Sep 11 j 11:22	6° $\times$ 07'59	47.27826 AU
				opposition	-1615 Sep 13 j 03:05	6° $\times$ 06'04	-17°-36'-6
conjunction	-1622 Mar 03 j 03:09	28° $\approx$ 26'45	-16°-54'-16	direct	-1615 Dec 03 j 04:36	5° $\times$ 06'09	
minimum elong	-1622 Mar 03 j 03:12	28° $\approx$ 26'45	16°54'18				
max. Earth dist.	-1622 Mar 05 j 07:34	28° $\approx$ 29'53	48.47103 AU	conjunction	-1614 Mar 11 j 10:23	6° $\times$ 34'40	-16°-53'-16
	-1622 Jun 05 j 06:31	0° $\times$		minimum elong	-1614 Mar 11 j 10:27	6° $\times$ 34'40	16°53'18
retrograde	-1622 Jun 14 j 12:48	0° $\times$ 00'55		max. Earth dist.	-1614 Mar 13 j 05:19	6° $\times$ 37'11	49.22689 AU
	-1622 Jun 23 j 15:14	30° $\times$		retrograde	-1614 Jun 22 j 12:30	8° $\times$ 06'56	
min. Earth dist.	-1622 Sep 04 j 07:07	29° $\approx$ 01'27	46.61772 AU	min. Earth dist.	-1614 Sep 12 j 17:32	7° $\times$ 07'43	47.35537 AU
opposition	-1622 Sep 06 j 07:22	28° $\approx$ 59'06	-17°-37'-38	opposition	-1614 Sep 14 j 08:47	7° $\times$ 05'49	-17°-34'-43
direct	-1622 Nov 26 j 04:14	27° $\approx$ 58'40		direct	-1614 Dec 04 j 12:27	6° $\times$ 05'57	
conjunction	-1621 Mar 04 j 10:14	29° $\approx$ 28'39	-16°-55'-8	conjunction	-1613 Mar 12 j 16:38	7° $\times$ 34'17	-16°-51'-51
minimum elong	-1621 Mar 04 j 10:16	29° $\approx$ 28'39	16°55'09	minimum elong	-1613 Mar 12 j 16:44	7° $\times$ 34'17	16°51'52
max. Earth dist.	-1621 Mar 06 j 13:18	29° $\approx$ 31'42	48.58208 AU	max. Earth dist.	-1613 Mar 14 j 09:39	7° $\times$ 36'41	49.30278 AU
	-1621 Mar 26 j 18:53	0° $\times$		retrograde	-1613 Jun 23 j 21:15	9° $\times$ 06'21	
retrograde	-1621 Jun 15 j 17:42	1° $\times$ 02'34		min. Earth dist.	-1613 Sep 13 j 23:51	8° $\times$ 07'10	47.42960 AU
min. Earth dist.	-1621 Sep 05 j 13:52	0° $\times$ 03'13	46.72678 AU	opposition	-1613 Sep 15 j 14:29	8° $\times$ 05'19	-17°-33'-2
opposition	-1621 Sep 07 j 13:54	0° $\times$ 00'53	-17°-38'-17	direct	-1613 Dec 05 j 15:56	7° $\times$ 05'31	
	-1621 Sep 08 j 08:16	30° $\times$					
direct	-1621 Nov 27 j 12:11	29° $\approx$ 00'34		conjunction	-1612 Mar 12 j 23:04	8° $\times$ 33'41	-16°-50'-9
	-1620 Feb 12 j 00:48	0° $\times$		minimum elong	-1612 Mar 12 j 23:10	8° $\times$ 33'41	16°50'10
				max. Earth dist.	-1612 Mar 14 j 16:05	8° $\times$ 36'04	49.37582 AU
conjunction	-1620 Mar 04 j 17:24	0° $\times$ 30'21	-16°-55'-42	retrograde	-1612 Jun 24 j 03:33	10° $\times$ 05'34	
minimum elong	-1620 Mar 04 j 17:28	0° $\times$ 30'21	16°55'43	min. Earth dist.	-1612 Sep 14 j 06:55	9° $\times$ 06'24	47.50089 AU
max. Earth dist.	-1620 Mar 06 j 18:59	0° $\times$ 33'18	48.68876 AU	opposition	-1612 Sep 15 j 19:58	9° $\times$ 04'38	-17°-31'-2
retrograde	-1620 Jun 15 j 23:41	2° $\times$ 04'03		direct	-1612 Dec 05 j 21:09	8° $\times$ 04'54	
min. Earth dist.	-1620 Sep 05 j 22:28	1° $\times$ 04'42	46.83126 AU				
opposition	-1620 Sep 07 j 20:21	1° $\times$ 02'29	-17°-38'-37	conjunction	-1611 Mar 14 j 05:22	9° $\times$ 32'56	-16°-48'-9
direct	-1620 Nov 27 j 20:04	0° $\times$ 02'16		minimum elong	-1611 Mar 14 j 05:30	9° $\times$ 32'56	16°48'10
				max. Earth dist.	-1611 Mar 15 j 21:04	9° $\times$ 35'14	49.44614 AU
conjunction	-1619 Mar 06 j 00:38	1° $\times$ 31'50	-16°-55'-59	retrograde	-1611 Jun 25 j 08:39	11° $\times$ 04'38	
minimum elong	-1619 Mar 06 j 00:41	1° $\times$ 31'50	16°56'00	min. Earth dist.	-1611 Sep 15 j 12:16	10° $\times$ 05'35	47.56933 AU
max. Earth dist.	-1619 Mar 08 j 01:32	1° $\times$ 34'44	48.79065 AU	opposition	-1611 Sep 17 j 01:24	10° $\times$ 03'48	-17°-28'-44
retrograde	-1619 Jun 17 j 05:28	3° $\times$ 05'18		direct	-1611 Dec 07 j 02:36	9° $\times$ 04'09	
min. Earth dist.	-1619 Sep 07 j 05:49	2° $\times$ 06'01	46.93049 AU				
opposition	-1619 Sep 09 j 02:44	2° $\times$ 03'50	-17°-38'-40	conjunction	-1610 Mar 15 j 11:23	10° $\times$ 32'04	-16°-45'-51
direct	-1619 Nov 29 j 04:12	1° $\times$ 03'42		minimum elong	-1610 Mar 15 j 11:28	10° $\times$ 32'04	16°45'53
				max. Earth dist.	-1610 Mar 17 j 02:00	10° $\times$ 34'19	49.51339 AU
conjunction	-1618 Mar 07 j 07:27	2° $\times$ 33'03	-16°-55'-59	retrograde	-1610 Jun 26 j 13:19	12° $\times$ 03'38	
minimum elong	-1618 Mar 07 j 07:31	2° $\times$ 33'04	16°56'01	min. Earth dist.	-1610 Sep 16 j 19:40	11° $\times$ 04'35	47.63456 AU
max. Earth dist.	-1618 Mar 09 j 05:57	2° $\times$ 35'48	48.88727 AU	opposition	-1610 Sep 18 j 06:57	11° $\times$ 02'54	-17°-26'-8
retrograde	-1618 Jun 18 j 15:00	4° $\times$ 06'17		direct	-1610 Dec 08 j 09:18	10° $\times$ 03'21	
min. Earth dist.	-1618 Sep 08 j 13:17	3° $\times$ 07'02	47.02449 AU				
opposition	-1618 Sep 10 j 09:06	3° $\times$ 04'55	-17°-38'-27	conjunction	-1609 Mar 16 j 17:42	11° $\times$ 31'09	-16°-43'-16
direct	-1618 Nov 30 j 08:32	2° $\times$ 04'50		minimum elong	-1609 Mar 16 j 17:50	11° $\times$ 31'09	16°43'18
				max. Earth dist.	-1609 Mar 18 j 07:59	11° $\times$ 33'22	49.57733 AU
conjunction	-1617 Mar 08 j 14:25	3° $\times$ 33'58	-16°-55'-44	retrograde	-1609 Jun 27 j 18:00	13° $\times$ 02'35	



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 19

Attention, astronomical year style is used: The year -1609 in astronomical counting style is the year 1610 BCE in historical counting style.

min. Earth dist.	-1609 Sep 18 j 01:31	12° $\text{H}$ 03'37	47.69597 AU	conjunction	-1600 Mar 24 j 23:52	20° $\text{H}$ 17'33	-16°-8'-49
opposition	-1609 Sep 19 j 12:10	12° $\text{H}$ 01'58	-17°-23'-16	minimum elong	-1600 Mar 25 j 00:01	20° $\text{H}$ 17'33	16°08'50
direct	-1609 Dec 09 j 16:33	11° $\text{H}$ 02'30		max. Earth dist.	-1600 Mar 26 j 01:54	20° $\text{H}$ 19'02	49.94581 AU
				retrograde	-1600 Jul 05 j 22:43	21° $\text{H}$ 47'41	
conjunction	-1608 Mar 16 j 23:55	12° $\text{H}$ 30'11	-16°-40'-26	min. Earth dist.	-1600 Sep 26 j 10:06	20° $\text{H}$ 48'41	48.03924 AU
minimum elong	-1608 Mar 17 j 00:01	12° $\text{H}$ 30'12	16°40'27	opposition	-1600 Sep 27 j 09:24	20° $\text{H}$ 47'35	-16°-45'-56
max. Earth dist.	-1608 Mar 18 j 11:50	12° $\text{H}$ 32'16	49.63714 AU	direct	-1600 Dec 17 j 13:36	19° $\text{H}$ 48'26	
retrograde	-1608 Jun 28 j 02:50	14° $\text{H}$ 01'30					
min. Earth dist.	-1608 Sep 18 j 08:14	13° $\text{H}$ 02'34	47.75301 AU	conjunction	-1599 Mar 26 j 05:37	21° $\text{H}$ 15'10	-16°-3'-42
opposition	-1608 Sep 19 j 17:30	13° $\text{H}$ 00'59	-17°-20'-8	minimum elong	-1599 Mar 26 j 05:46	21° $\text{H}$ 15'11	16°03'43
direct	-1608 Dec 09 j 20:09	12° $\text{H}$ 01'36		max. Earth dist.	-1599 Mar 27 j 07:22	21° $\text{H}$ 16'39	49.96790 AU
				retrograde	-1599 Jul 07 j 01:24	22° $\text{H}$ 45'13	
conjunction	-1607 Mar 18 j 06:12	13° $\text{H}$ 29'11	-16°-37'-20	opposition	-1599 Sep 28 j 14:02	21° $\text{H}$ 45'09	-16°-40'-27
minimum elong	-1607 Mar 18 j 06:20	13° $\text{H}$ 29'12	16°37'22	min. Earth dist.	-1599 Sep 27 j 14:59	21° $\text{H}$ 46'15	48.05883 AU
max. Earth dist.	-1607 Mar 19 j 17:40	13° $\text{H}$ 31'14	49.69211 AU	direct	-1599 Dec 18 j 20:57	20° $\text{H}$ 46'03	
retrograde	-1607 Jun 29 j 10:33	15° $\text{H}$ 00'21					
opposition	-1607 Sep 20 j 22:45	13° $\text{H}$ 59'56	-17°-16'-44	conjunction	-1598 Mar 27 j 11:13	22° $\text{H}$ 12'44	-15°-58'-18
min. Earth dist.	-1607 Sep 19 j 15:28	14° $\text{H}$ 01'25	47.80483 AU	minimum elong	-1598 Mar 27 j 11:24	22° $\text{H}$ 12'44	15°58'20
direct	-1607 Dec 10 j 23:45	13° $\text{H}$ 00'37		max. Earth dist.	-1598 Mar 28 j 10:59	22° $\text{H}$ 14'05	49.98689 AU
				retrograde	-1598 Jul 08 j 07:58	23° $\text{H}$ 42'41	
conjunction	-1606 Mar 19 j 12:23	14° $\text{H}$ 28'06	-16°-34'00	opposition	-1598 Sep 29 j 18:44	22° $\text{H}$ 42'42	-16°-34'-42
minimum elong	-1606 Mar 19 j 12:30	14° $\text{H}$ 28'06	16°34'01	min. Earth dist.	-1598 Sep 28 j 20:53	22° $\text{H}$ 43'44	48.07527 AU
max. Earth dist.	-1606 Mar 20 j 21:44	14° $\text{H}$ 30'01	49.74199 AU	direct	-1598 Dec 20 j 01:14	21° $\text{H}$ 43'38	
retrograde	-1606 Jun 30 j 17:31	15° $\text{H}$ 59'06					
min. Earth dist.	-1606 Sep 20 j 21:02	15° $\text{H}$ 00'13	47.85142 AU	conjunction	-1597 Mar 28 j 16:58	23° $\text{H}$ 10'16	-15°-52'-40
opposition	-1606 Sep 22 j 03:55	14° $\text{H}$ 58'45	-17°-13'-6	minimum elong	-1597 Mar 28 j 17:07	23° $\text{H}$ 10'16	15°52'41
direct	-1606 Dec 12 j 03:14	13° $\text{H}$ 59'29		max. Earth dist.	-1597 Mar 29 j 16:30	23° $\text{H}$ 11'36	50.00238 AU
				retrograde	-1597 Jul 09 j 14:49	24° $\text{H}$ 40'09	
conjunction	-1605 Mar 20 j 18:25	15° $\text{H}$ 26'51	-16°-30'-26	opposition	-1597 Sep 30 j 23:25	23° $\text{H}$ 40'13	-16°-28'-41
minimum elong	-1605 Mar 20 j 18:33	15° $\text{H}$ 26'52	16°30'28	min. Earth dist.	-1597 Sep 30 j 03:16	23° $\text{H}$ 41'11	48.08774 AU
max. Earth dist.	-1605 Mar 22 j 02:10	15° $\text{H}$ 28'41	49.78653 AU	direct	-1597 Dec 21 j 05:10	22° $\text{H}$ 41'13	
retrograde	-1605 Jul 01 j 20:20	16° $\text{H}$ 57'43					
min. Earth dist.	-1605 Sep 22 j 04:38	15° $\text{H}$ 58'46	47.89279 AU	conjunction	-1596 Mar 28 j 22:47	24° $\text{H}$ 07'48	-15°-46'-46
opposition	-1605 Sep 23 j 09:09	15° $\text{H}$ 57'24	-17°-9'-14	minimum elong	-1596 Mar 28 j 22:58	24° $\text{H}$ 07'49	15°46'47
direct	-1605 Dec 13 j 11:14	14° $\text{H}$ 58'10		max. Earth dist.	-1596 Mar 29 j 20:22	24° $\text{H}$ 09'02	50.01373 AU
				retrograde	-1596 Jul 09 j 22:31	25° $\text{H}$ 37'37	
conjunction	-1604 Mar 21 j 00:36	16° $\text{H}$ 25'24	-16°-26'-38	min. Earth dist.	-1596 Sep 30 j 08:15	24° $\text{H}$ 38'41	48.09571 AU
minimum elong	-1604 Mar 21 j 00:44	16° $\text{H}$ 25'25	16°26'38	opposition	-1596 Oct 01 j 03:52	24° $\text{H}$ 37'45	-16°-22'-26
max. Earth dist.	-1604 Mar 22 j 07:42	16° $\text{H}$ 27'12	49.82618 AU	direct	-1596 Dec 21 j 07:24	23° $\text{H}$ 38'47	
retrograde	-1604 Jul 01 j 22:41	17° $\text{H}$ 56'07					
min. Earth dist.	-1604 Sep 22 j 10:09	16° $\text{H}$ 57'11	47.92938 AU	conjunction	-1595 Mar 30 j 04:35	25° $\text{H}$ 05'21	-15°-40'-39
opposition	-1604 Sep 23 j 13:59	16° $\text{H}$ 55'51	-17°-5'-7	minimum elong	-1595 Mar 30 j 04:45	25° $\text{H}$ 05'22	15°40'40
direct	-1604 Dec 13 j 19:53	15° $\text{H}$ 56'38		max. Earth dist.	-1595 Mar 31 j 00:29	25° $\text{H}$ 06'29	50.02010 AU
				retrograde	-1595 Jul 11 j 02:43	26° $\text{H}$ 35'06	
conjunction	-1603 Mar 22 j 06:29	17° $\text{H}$ 23'45	-16°-22'-34	opposition	-1595 Oct 02 j 08:37	25° $\text{H}$ 35'18	-16°-15'-57
minimum elong	-1603 Mar 22 j 06:37	17° $\text{H}$ 23'45	16°22'36	min. Earth dist.	-1595 Oct 01 j 15:28	25° $\text{H}$ 36'06	48.09847 AU
max. Earth dist.	-1603 Mar 23 j 11:16	17° $\text{H}$ 25'24	49.86136 AU	direct	-1595 Dec 22 j 13:02	24° $\text{H}$ 36'21	
retrograde	-1603 Jul 03 j 06:19	18° $\text{H}$ 54'18					
opposition	-1603 Sep 24 j 18:57	17° $\text{H}$ 54'04	-17°00'-43	conjunction	-1594 Mar 31 j 10:22	26° $\text{H}$ 02'53	-15°-34'-19
min. Earth dist.	-1603 Sep 23 j 16:16	17° $\text{H}$ 55'21	47.96193 AU	minimum elong	-1594 Mar 31 j 10:33	26° $\text{H}$ 02'54	15°34'20
direct	-1603 Dec 14 j 23:49	16° $\text{H}$ 54'52		max. Earth dist.	-1594 Apr 01 j 05:25	26° $\text{H}$ 03'58	50.02120 AU
				retrograde	-1594 Jul 12 j 04:58	27° $\text{H}$ 32'35	
conjunction	-1602 Mar 23 j 12:15	18° $\text{H}$ 21'52	-16°-18'-15	opposition	-1594 Oct 03 j 13:14	26° $\text{H}$ 32'48	-16°-9'-15
minimum elong	-1602 Mar 23 j 12:24	18° $\text{H}$ 21'53	16°18'16	min. Earth dist.	-1594 Oct 02 j 20:49	26° $\text{H}$ 33'35	48.09565 AU
max. Earth dist.	-1602 Mar 24 j 16:57	18° $\text{H}$ 23'31	49.89273 AU	direct	-1594 Dec 23 j 20:59	25° $\text{H}$ 33'51	
retrograde	-1602 Jul 04 j 12:28	19° $\text{H}$ 52'17					
opposition	-1602 Sep 25 j 23:52	18° $\text{H}$ 52'05	-16°-56'-4	conjunction	-1593 Apr 01 j 16:07	27° $\text{H}$ 00'22	-15°-27'-46
min. Earth dist.	-1602 Sep 24 j 22:39	18° $\text{H}$ 53'17	47.99079 AU	minimum elong	-1593 Apr 01 j 16:17	27° $\text{H}$ 00'23	15°27'46
direct	-1602 Dec 16 j 04:42	17° $\text{H}$ 52'54		max. Earth dist.	-1593 Apr 02 j 08:25	27° $\text{H}$ 01'18	50.01676 AU
				retrograde	-1593 Jul 13 j 11:41	28° $\text{H}$ 30'00	
conjunction	-1601 Mar 24 j 18:04	19° $\text{H}$ 19'47	-16°-13'-40	opposition	-1593 Oct 04 j 17:45	27° $\text{H}$ 30'14	-16°-2'-19
minimum elong	-1601 Mar 24 j 18:13	19° $\text{H}$ 19'48	16°13'42	min. Earth dist.	-1593 Oct 04 j 03:00	27° $\text{H}$ 30'56	48.08750 AU
max. Earth dist.	-1601 Mar 25 j 21:18	19° $\text{H}$ 21'21	49.92083 AU	direct	-1593 Dec 25 j 01:11	26° $\text{H}$ 31'17	
retrograde	-1601 Jul 05 j 18:27	20° $\text{H}$ 50'03					
min. Earth dist.	-1601 Sep 26 j 03:27	19° $\text{H}$ 51'06	48.01653 AU	conjunction	-1592 Apr 01 j 22:01	27° $\text{H}$ 57'46	-15°-20'-59
opposition	-1601 Sep 27 j 04:32	19° $\text{H}$ 49'54	-16°-51'-8	minimum elong	-1592 Apr 01 j 22:12	27° $\text{H}$ 57'47	15°21'01
direct	-1601 Dec 17 j 08:02	18° $\text{H}$ 50'44		max. Earth dist.	-1592 Apr 02 j 13:46	27° $\text{H}$ 58'40	50.00708 AU



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 20

Attention, astronomical year style is used: The year -1592 in astronomical counting style is the year 1593 BCE in historical counting style.

retrograde	-1592 Jul 13 j 17:36	29° <del>✕</del> 27'20		minimum elong	-1584 Apr 09 j 19:13	5° <del>Υ</del> 35'08	14°17'56
opposition	-1592 Oct 04 j 22:18	28° <del>✕</del> 27'35	-15°-55'-10	max. Earth dist.	-1584 Apr 10 j 01:31	5° <del>Υ</del> 35'30	49.79597 AU
min. Earth dist.	-1592 Oct 04 j 09:20	28° <del>✕</del> 28'12	48.07422 AU	retrograde	-1584 Jul 21 j 09:39	7° <del>Υ</del> 04'29	
direct	-1592 Dec 25 j 05:47	27° <del>✕</del> 28'37		opposition	-1584 Oct 12 j 09:14	6° <del>Υ</del> 04'52	-14°-48'-43
				min. Earth dist.	-1584 Oct 12 j 04:18	6° <del>Υ</del> 05'06	47.83893 AU
conjunction	-1591 Apr 03 j 03:37	28° <del>✕</del> 55'04	-15°-13'-58	direct	-1583 Jan 01 j 18:58	5° <del>Υ</del> 05'51	
minimum elong	-1591 Apr 03 j 03:48	28° <del>✕</del> 55'05	15°13'59				
max. Earth dist.	-1591 Apr 03 j 17:32	28° <del>✕</del> 55'51	49.99275 AU	conjunction	-1583 Apr 11 j 00:39	6° <del>Υ</del> 32'30	-14°-8'-57
	-1591 May 26 j 09:33	0° <del>Υ</del>		minimum elong	-1583 Apr 11 j 00:52	6° <del>Υ</del> 32'30	14°08'57
retrograde	-1591 Jul 14 j 23:49	0° <del>Υ</del> 24'33		max. Earth dist.	-1583 Apr 11 j 04:34	6° <del>Υ</del> 32'43	49.75321 AU
	-1591 Sep 02 j 22:31	30° <del>✕</del>		retrograde	-1583 Jul 22 j 14:36	8° <del>Υ</del> 01'53	
opposition	-1591 Oct 06 j 02:40	29° <del>✕</del> 24'49	-15°-47'-46	opposition	-1583 Oct 13 j 13:41	7° <del>Υ</del> 02'16	-14°-39'-17
min. Earth dist.	-1591 Oct 05 j 14:03	29° <del>✕</del> 25'25	48.05661 AU	min. Earth dist.	-1583 Oct 13 j 10:28	7° <del>Υ</del> 02'25	47.79237 AU
direct	-1591 Dec 26 j 08:41	28° <del>✕</del> 25'50		direct	-1582 Jan 03 j 00:31	6° <del>Υ</del> 03'14	
conjunction	-1590 Apr 04 j 09:14	29° <del>✕</del> 52'16	-15°-6'-43	conjunction	-1582 Apr 12 j 06:34	7° <del>Υ</del> 29'55	-13°-59'-44
minimum elong	-1590 Apr 04 j 09:24	29° <del>✕</del> 52'17	15°06'45	minimum elong	-1582 Apr 12 j 06:45	7° <del>Υ</del> 29'56	13°59'44
max. Earth dist.	-1590 Apr 04 j 21:44	29° <del>✕</del> 52'59	49.97427 AU	max. Earth dist.	-1582 Apr 12 j 09:50	7° <del>Υ</del> 30'06	49.70535 AU
	-1590 Apr 10 j 01:44	0° <del>Υ</del>		retrograde	-1582 Jul 23 j 20:09	8° <del>Υ</del> 59'20	
retrograde	-1590 Jul 16 j 03:58	1° <del>Υ</del> 21'42		opposition	-1582 Oct 14 j 18:09	7° <del>Υ</del> 59'42	-14°-29'-37
opposition	-1590 Oct 07 j 07:07	0° <del>Υ</del> 21'58	-15°-40'-7	min. Earth dist.	-1582 Oct 14 j 16:41	7° <del>Υ</del> 59'46	47.74047 AU
min. Earth dist.	-1590 Oct 06 j 20:32	0° <del>Υ</del> 22'28	48.03521 AU	direct	-1581 Jan 04 j 05:29	7° <del>Υ</del> 00'37	
	-1590 Oct 27 j 01:39	30° <del>✕</del>					
direct	-1590 Dec 27 j 14:04	29° <del>✕</del> 22'58		conjunction	-1581 Apr 13 j 12:22	8° <del>Υ</del> 27'21	-13°-50'-19
	-1589 Feb 26 j 00:51	0° <del>Υ</del>		minimum elong	-1581 Apr 13 j 12:34	8° <del>Υ</del> 27'22	13°50'20
				max. Earth dist.	-1581 Apr 13 j 13:29	8° <del>Υ</del> 27'25	49.65230 AU
conjunction	-1589 Apr 05 j 14:53	0° <del>Υ</del> 49'24	-14°-59'-14	retrograde	-1581 Jul 25 j 03:35	9° <del>Υ</del> 56'45	
minimum elong	-1589 Apr 05 j 15:04	0° <del>Υ</del> 49'25	14°59'14	opposition	-1581 Oct 15 j 22:33	8° <del>Υ</del> 57'07	-14°-19'-44
max. Earth dist.	-1589 Apr 06 j 03:02	0° <del>Υ</del> 50'05	49.95238 AU	min. Earth dist.	-1581 Oct 15 j 21:46	8° <del>Υ</del> 57'09	47.68337 AU
retrograde	-1589 Jul 17 j 06:00	2° <del>Υ</del> 18'47		direct	-1580 Jan 05 j 08:02	7° <del>Υ</del> 57'58	
opposition	-1589 Oct 08 j 11:27	1° <del>Υ</del> 19'03	-15°-32'-12				
min. Earth dist.	-1589 Oct 08 j 01:03	1° <del>Υ</del> 19'33	48.01041 AU	conjunction	-1580 Apr 13 j 18:14	9° <del>Υ</del> 24'45	-13°-40'-40
direct	-1589 Dec 28 j 21:33	0° <del>Υ</del> 20'03		minimum elong	-1580 Apr 13 j 18:25	9° <del>Υ</del> 24'46	13°40'40
				max. Earth dist.	-1580 Apr 13 j 17:34	9° <del>Υ</del> 24'43	49.59404 AU
conjunction	-1588 Apr 05 j 20:26	1° <del>Υ</del> 46'28	-14°-51'-29	retrograde	-1580 Jul 25 j 09:07	10° <del>Υ</del> 54'09	
minimum elong	-1588 Apr 05 j 20:37	1° <del>Υ</del> 46'29	14°51'29	opposition	-1580 Oct 16 j 02:58	9° <del>Υ</del> 54'28	-14°-9'-38
max. Earth dist.	-1588 Apr 06 j 06:30	1° <del>Υ</del> 47'03	49.92726 AU	min. Earth dist.	-1580 Oct 16 j 04:27	9° <del>Υ</del> 54'24	47.62136 AU
retrograde	-1588 Jul 17 j 11:42	3° <del>Υ</del> 15'50		direct	-1579 Jan 05 j 12:33	8° <del>Υ</del> 55'16	
opposition	-1588 Oct 08 j 15:46	2° <del>Υ</del> 16'07	-15°-24'-1				
min. Earth dist.	-1588 Oct 08 j 06:40	2° <del>Υ</del> 16'33	47.98265 AU	conjunction	-1579 Apr 15 j 00:06	10° <del>Υ</del> 22'06	-13°-30'-47
direct	-1588 Dec 29 j 02:00	1° <del>Υ</del> 17'06		minimum elong	-1579 Apr 15 j 00:18	10° <del>Υ</del> 22'07	13°30'48
				max. Earth dist.	-1579 Apr 14 j 22:52	10° <del>Υ</del> 22'02	49.53130 AU
conjunction	-1587 Apr 07 j 02:06	2° <del>Υ</del> 43'33	-14°-43'-28	retrograde	-1579 Jul 26 j 11:35	11° <del>Υ</del> 51'30	
minimum elong	-1587 Apr 07 j 02:18	2° <del>Υ</del> 43'33	14°43'29	opposition	-1579 Oct 17 j 07:18	10° <del>Υ</del> 51'47	-13°-59'-16
max. Earth dist.	-1587 Apr 07 j 12:05	2° <del>Υ</del> 44'06	49.89922 AU	min. Earth dist.	-1579 Oct 17 j 09:11	10° <del>Υ</del> 51'41	47.55505 AU
retrograde	-1587 Jul 18 j 18:02	4° <del>Υ</del> 12'54		direct	-1578 Jan 06 j 19:33	9° <del>Υ</del> 52'30	
opposition	-1587 Oct 09 j 20:11	3° <del>Υ</del> 13'12	-15°-15'-35				
min. Earth dist.	-1587 Oct 09 j 12:14	3° <del>Υ</del> 13'35	47.95186 AU	conjunction	-1578 Apr 16 j 05:41	11° <del>Υ</del> 19'24	-13°-20'-40
direct	-1587 Dec 30 j 06:02	2° <del>Υ</del> 14'11		minimum elong	-1578 Apr 16 j 05:53	11° <del>Υ</del> 19'24	13°20'40
				max. Earth dist.	-1578 Apr 16 j 02:14	11° <del>Υ</del> 19'12	49.46454 AU
conjunction	-1586 Apr 08 j 07:30	3° <del>Υ</del> 40'39	-14°-35'-12	retrograde	-1578 Jul 27 j 16:41	12° <del>Υ</del> 48'50	
minimum elong	-1586 Apr 08 j 07:41	3° <del>Υ</del> 40'40	14°35'13	opposition	-1578 Oct 18 j 11:45	11° <del>Υ</del> 49'03	-13°-48'-40
max. Earth dist.	-1586 Apr 08 j 15:56	3° <del>Υ</del> 41'08	49.86833 AU	min. Earth dist.	-1578 Oct 18 j 15:06	11° <del>Υ</del> 48'54	47.48512 AU
retrograde	-1586 Jul 20 j 02:42	5° <del>Υ</del> 10'00		direct	-1577 Jan 08 j 00:36	10° <del>Υ</del> 49'43	
opposition	-1586 Oct 11 j 00:32	4° <del>Υ</del> 10'20	-15°-6'-52				
min. Earth dist.	-1586 Oct 10 j 16:48	4° <del>Υ</del> 10'42	47.91806 AU	conjunction	-1577 Apr 17 j 11:39	12° <del>Υ</del> 16'40	-13°-10'-19
direct	-1586 Dec 31 j 07:05	3° <del>Υ</del> 11'19		minimum elong	-1577 Apr 17 j 11:50	12° <del>Υ</del> 16'41	13°10'19
				max. Earth dist.	-1577 Apr 17 j 07:57	12° <del>Υ</del> 16'28	49.39430 AU
conjunction	-1585 Apr 09 j 13:10	4° <del>Υ</del> 37'51	-14°-26'-41	retrograde	-1577 Jul 28 j 21:19	13° <del>Υ</del> 46'09	
minimum elong	-1585 Apr 09 j 13:23	4° <del>Υ</del> 37'51	14°26'42	opposition	-1577 Oct 19 j 16:06	12° <del>Υ</del> 46'20	-13°-37'-48
max. Earth dist.	-1585 Apr 09 j 20:22	4° <del>Υ</del> 38'15	49.83405 AU	min. Earth dist.	-1577 Oct 19 j 20:39	12° <del>Υ</del> 46'07	47.41184 AU
retrograde	-1585 Jul 21 j 08:02	6° <del>Υ</del> 07'12		direct	-1576 Jan 09 j 06:15	11° <del>Υ</del> 46'56	
opposition	-1585 Oct 12 j 04:54	5° <del>Υ</del> 07'33	-14°-57'-55				
min. Earth dist.	-1585 Oct 11 j 23:24	5° <del>Υ</del> 07'49	47.88064 AU	conjunction	-1576 Apr 17 j 17:31	13° <del>Υ</del> 13'59	-12°-59'-42
direct	-1584 Jan 01 j 10:50	4° <del>Υ</del> 08'33		minimum elong	-1576 Apr 17 j 17:44	13° <del>Υ</del> 13'59	12°59'42
				max. Earth dist.	-1576 Apr 17 j 12:14	13° <del>Υ</del> 13'41	49.32111 AU
conjunction	-1584 Apr 09 j 19:02	5° <del>Υ</del> 35'08	-14°-17'-56	retrograde	-1576 Jul 29 j 05:23	14° <del>Υ</del> 43'30	



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 21

Attention, astronomical year style is used: The year -1576 in astronomical counting style is the year 1577 BCE in historical counting style.

opposition	-1576 Oct 19 j 20:32	13°Y43'40	-13°-26'-40	max. Earth dist.	-1567 Apr 26 j 08:11	21°Y57'02	48.49831 AU
min. Earth dist.	-1576 Oct 20 j 01:16	13°Y43'26	47.33576 AU				
direct	-1575 Jan 09 j 08:13	12°Y44'12		conjunction	-1567 Apr 27 j 01:31	21°Y58'01	-11°-13'-3
				minimum elong	-1567 Apr 27 j 01:43	21°Y58'02	11°13'03
conjunction	-1575 Apr 18 j 23:18	14°Y11'23	-12°-48'-49	retrograde	-1567 Aug 07 j 06:28	23°Y28'35	
minimum elong	-1575 Apr 18 j 23:29	14°Y11'23	12°48'50	opposition	-1567 Oct 28 j 15:06	22°Y28'28	-11°-35'-1
max. Earth dist.	-1575 Apr 18 j 16:53	14°Y11'01	49.24501 AU	min. Earth dist.	-1567 Oct 29 j 07:49	22°Y27'39	46.48019 AU
retrograde	-1575 Jul 30 j 12:03	15°Y40'59		direct	-1566 Jan 18 j 07:51	21°Y28'27	
opposition	-1575 Oct 21 j 01:07	14°Y41'07	-13°-15'-16				
min. Earth dist.	-1575 Oct 21 j 07:44	14°Y40'48	47.25687 AU	conjunction	-1566 Apr 28 j 08:00	22°Y57'05	-11°00'-1
direct	-1574 Jan 10 j 11:17	13°Y41'37		minimum elong	-1566 Apr 28 j 08:12	22°Y57'06	11°00'02
				max. Earth dist.	-1566 Apr 27 j 12:51	22°Y55'59	48.38410 AU
conjunction	-1574 Apr 20 j 05:17	15°Y08'56	-12°-37'-42	retrograde	-1566 Aug 08 j 15:01	24°Y27'46	
minimum elong	-1574 Apr 20 j 05:30	15°Y08'56	12°37'42	opposition	-1566 Oct 29 j 19:56	23°Y27'34	-11°-21'-22
max. Earth dist.	-1574 Apr 19 j 22:32	15°Y08'32	49.16629 AU	min. Earth dist.	-1566 Oct 30 j 13:16	23°Y26'43	46.36257 AU
retrograde	-1574 Jul 31 j 14:48	16°Y38'37		direct	-1565 Jan 19 j 10:35	22°Y27'25	
opposition	-1574 Oct 22 j 05:33	15°Y38'45	-13°-3'-36				
min. Earth dist.	-1574 Oct 22 j 12:16	15°Y38'26	47.17510 AU	conjunction	-1565 Apr 29 j 14:39	23°Y56'15	-10°-46'-44
direct	-1573 Jan 11 j 18:33	14°Y39'13		minimum elong	-1565 Apr 29 j 14:51	23°Y56'16	10°46'43
				max. Earth dist.	-1565 Apr 28 j 18:11	23°Y55'04	48.26615 AU
conjunction	-1573 Apr 21 j 11:14	16°Y06'41	-12°-26'-19	retrograde	-1565 Aug 09 j 23:55	25°Y27'04	
minimum elong	-1573 Apr 21 j 11:26	16°Y06'42	12°26'19	opposition	-1565 Oct 31 j 01:06	24°Y26'46	-11°-7'-28
max. Earth dist.	-1573 Apr 21 j 02:14	16°Y06'10	49.08448 AU	min. Earth dist.	-1565 Oct 31 j 20:23	24°Y25'50	46.24149 AU
retrograde	-1573 Aug 01 j 19:55	17°Y36'30		direct	-1564 Jan 20 j 13:09	23°Y26'31	
opposition	-1573 Oct 23 j 10:10	16°Y36'38	-12°-51'-40				
min. Earth dist.	-1573 Oct 23 j 18:29	16°Y36'14	47.09004 AU	conjunction	-1564 Apr 29 j 21:22	24°Y55'33	-10°-33'-11
direct	-1572 Jan 13 j 00:09	15°Y37'04		minimum elong	-1564 Apr 29 j 21:33	24°Y55'33	10°33'11
				max. Earth dist.	-1564 Apr 29 j 00:24	24°Y54'20	48.14508 AU
conjunction	-1572 Apr 21 j 17:30	17°Y04'42	-12°-14'-41	retrograde	-1564 Aug 10 j 04:06	26°Y26'30	
minimum elong	-1572 Apr 21 j 17:43	17°Y04'43	12°14'41	opposition	-1564 Oct 31 j 06:05	25°Y26'07	-10°-53'-17
max. Earth dist.	-1572 Apr 21 j 08:11	17°Y04'10	48.99891 AU	min. Earth dist.	-1564 Nov 01 j 01:24	25°Y25'11	46.11738 AU
retrograde	-1572 Aug 02 j 01:47	18°Y34'39		direct	-1563 Jan 20 j 20:20	24°Y25'45	
opposition	-1572 Oct 23 j 14:46	17°Y34'46	-12°-39'-30	max. Earth dist.	-1563 Apr 30 j 04:59	25°Y53'40	48.02112 AU
min. Earth dist.	-1572 Oct 24 j 00:37	17°Y34'18	47.00079 AU				
direct	-1571 Jan 13 j 05:00	16°Y35'11		conjunction	-1563 May 01 j 04:02	25°Y55'00	-10°-19'-23
				minimum elong	-1563 May 01 j 04:14	25°Y55'00	10°19'23
conjunction	-1571 Apr 22 j 23:44	18°Y02'58	-12°-2'-49	retrograde	-1563 Aug 11 j 08:50	27°Y26'08	
minimum elong	-1571 Apr 22 j 23:55	18°Y02'59	12°02'48	opposition	-1563 Nov 01 j 11:22	26°Y25'40	-10°-38'-49
max. Earth dist.	-1571 Apr 22 j 12:18	18°Y02'19	48.90901 AU	min. Earth dist.	-1563 Nov 02 j 08:07	26°Y24'39	45.99059 AU
retrograde	-1571 Aug 03 j 10:20	19°Y33'03		direct	-1562 Jan 22 j 03:12	25°Y25'11	
opposition	-1571 Oct 24 j 19:28	18°Y33'10	-12°-27'-4	max. Earth dist.	-1562 May 01 j 11:47	26°Y53'19	47.89442 AU
min. Earth dist.	-1571 Oct 25 j 06:03	18°Y32'40	46.90693 AU				
direct	-1570 Jan 14 j 07:03	17°Y33'31		conjunction	-1562 May 02 j 10:52	26°Y54'40	-10°-5'-19
				minimum elong	-1562 May 02 j 11:03	26°Y54'40	10°05'19
conjunction	-1570 Apr 24 j 05:59	19°Y01'30	-11°-50'-43	retrograde	-1562 Aug 12 j 13:19	28°Y25'59	
minimum elong	-1570 Apr 24 j 06:11	19°Y01'30	11°50'43	opposition	-1562 Nov 02 j 16:44	27°Y25'27	-10°-24'-5
max. Earth dist.	-1570 Apr 23 j 16:46	19°Y00'44	48.81402 AU	min. Earth dist.	-1562 Nov 03 j 14:30	27°Y24'23	45.86085 AU
retrograde	-1570 Aug 04 j 17:15	20°Y31'42		direct	-1561 Jan 23 j 10:36	26°Y24'52	
opposition	-1570 Oct 26 j 00:26	19°Y31'46	-12°-14'-25				
min. Earth dist.	-1570 Oct 26 j 13:23	19°Y31'09	46.80779 AU	conjunction	-1561 May 03 j 17:52	27°Y54'36	-9°-50'-58
direct	-1569 Jan 15 j 11:28	18°Y32'04		minimum elong	-1561 May 03 j 18:04	27°Y54'37	9°50'59
				max. Earth dist.	-1561 May 02 j 16:58	27°Y53'09	47.76477 AU
conjunction	-1569 Apr 25 j 12:33	20°Y00'13	-11°-38'-23	retrograde	-1561 Aug 13 j 21:41	29°Y26'08	
minimum elong	-1569 Apr 25 j 12:44	20°Y00'13	11°38'23	opposition	-1561 Nov 03 j 21:59	28°Y25'32	-10°-9'-4
max. Earth dist.	-1569 Apr 24 j 22:24	19°Y59'24	48.71384 AU	min. Earth dist.	-1561 Nov 04 j 20:22	28°Y24'27	45.72796 AU
retrograde	-1569 Aug 05 j 21:14	21°Y30'31		direct	-1560 Jan 24 j 14:14	27°Y24'51	
opposition	-1569 Oct 27 j 05:10	20°Y30'33	-12°-1'-31	max. Earth dist.	-1560 May 02 j 22:47	28°Y53'19	47.63145 AU
min. Earth dist.	-1569 Oct 27 j 18:45	20°Y29'54	46.70337 AU				
direct	-1568 Jan 16 j 18:39	19°Y30'44		conjunction	-1560 May 04 j 01:08	28°Y54'51	-9°-36'-23
				minimum elong	-1560 May 04 j 01:19	28°Y54'52	9°36'23
conjunction	-1568 Apr 25 j 19:01	20°Y59'04	-11°-25'-50		-1560 Jun 24 j 15:48	0°8	
minimum elong	-1568 Apr 25 j 19:14	20°Y59'05	11°25'51	retrograde	-1560 Aug 14 j 06:06	0°826'37	
max. Earth dist.	-1568 Apr 25 j 02:11	20°Y58'06	48.60845 AU		-1560 Oct 04 j 05:19	30°R Y	
retrograde	-1568 Aug 06 j 02:41	22°Y29'30		opposition	-1560 Nov 04 j 03:37	29°Y25'57	-9°-53'-48
opposition	-1568 Oct 27 j 10:08	21°Y29'27	-11°-48'-23	min. Earth dist.	-1560 Nov 05 j 04:12	29°Y24'45	45.59114 AU
min. Earth dist.	-1568 Oct 28 j 01:38	21°Y28'42	46.59406 AU	direct	-1559 Jan 24 j 18:22	28°Y25'10	
direct	-1567 Jan 17 j 00:39	20°Y29'33		max. Earth dist.	-1559 May 04 j 05:18	29°Y53'52	47.49397 AU



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Attention, astronomical year style is used: The year -1559 in astronomical counting style is the year 1560 BCE in historical counting style.

conjunction	-1559 May 05 j 08:23	29°Υ55'27	-9°-21'-32	conjunction	-1551 May 13 j 23:18	8°♄11'00	-7°-13'-39
minimum elong	-1559 May 05 j 08:35	29°Υ55'28	9°21'32	minimum elong	-1551 May 13 j 23:27	8°♄11'00	7°13'39
	-1559 May 08 j 14:14	0°♄		retrograde	-1551 Aug 23 j 21:56	9°♄45'07	
retrograde	-1559 Aug 15 j 13:13	1°♄27'27		opposition	-1551 Nov 13 j 10:29	8°♄43'23	-7°-24'-16
opposition	-1559 Nov 05 j 09:14	0°♄26'42	-9°-38'-15	min. Earth dist.	-1551 Nov 14 j 21:02	8°♄41'39	44.16125 AU
min. Earth dist.	-1559 Nov 06 j 10:18	0°♄25'29	45.44977 AU	direct	-1550 Feb 03 j 05:43	7°♄41'12	
	-1559 Nov 28 j 22:21	30°♄Υ		max. Earth dist.	-1550 May 13 j 16:02	9°♄12'02	46.05972 AU
direct	-1558 Jan 26 j 00:46	29°Υ25'48					
	-1558 Mar 24 j 09:29	0°♄		conjunction	-1550 May 15 j 07:47	9°♄14'25	-6°-56'-27
max. Earth dist.	-1558 May 05 j 10:00	0°♄54'39	47.35161 AU	minimum elong	-1550 May 15 j 07:57	9°♄14'25	6°56'27
				retrograde	-1550 Aug 25 j 07:17	10°♄48'53	
conjunction	-1558 May 06 j 15:50	0°♄56'23	-9°-6'-26	opposition	-1550 Nov 14 j 17:16	9°♄47'01	-7°-6'-14
minimum elong	-1558 May 06 j 16:00	0°♄56'24	9°06'26	min. Earth dist.	-1550 Nov 16 j 05:27	9°♄45'13	43.98667 AU
retrograde	-1558 Aug 16 j 20:15	2°♄28'37		direct	-1549 Feb 04 j 10:43	8°♄44'41	
opposition	-1558 Nov 06 j 15:01	1°♄27'47	-9°-22'-27	max. Earth dist.	-1549 May 15 j 00:08	10°♄15'53	45.88528 AU
min. Earth dist.	-1558 Nov 07 j 18:14	1°♄26'27	45.30346 AU				
direct	-1557 Jan 27 j 07:10	0°♄26'45		conjunction	-1549 May 16 j 16:29	10°♄18'19	-6°-38'-58
				minimum elong	-1549 May 16 j 16:38	10°♄18'19	6°38'59
conjunction	-1557 May 07 j 23:36	1°♄57'38	-8°-51'-6	retrograde	-1549 Aug 26 j 17:52	11°♄53'08	
minimum elong	-1557 May 07 j 23:47	1°♄57'38	8°51'07	opposition	-1549 Nov 16 j 00:06	10°♄51'09	-6°-47'-53
max. Earth dist.	-1557 May 06 j 17:02	1°♄55'50	47.20416 AU	min. Earth dist.	-1549 Nov 17 j 12:26	10°♄49'20	43.80953 AU
retrograde	-1557 Aug 18 j 00:49	3°♄30'06		direct	-1548 Feb 05 j 16:37	9°♄48'39	
opposition	-1557 Nov 07 j 20:58	2°♄29'09	-9°-6'-24	max. Earth dist.	-1548 May 15 j 06:44	11°♄20'10	45.70781 AU
min. Earth dist.	-1557 Nov 09 j 01:25	2°♄27'45	45.15192 AU				
direct	-1556 Jan 28 j 15:27	1°♄27'59		conjunction	-1548 May 17 j 01:16	11°♄22'44	-6°-21'-13
max. Earth dist.	-1556 May 06 j 22:29	2°♄57'13	47.05172 AU	minimum elong	-1548 May 17 j 01:25	11°♄22'45	6°21'12
				retrograde	-1548 Aug 27 j 03:58	12°♄57'55	
conjunction	-1556 May 08 j 07:17	2°♄59'09	-8°-35'-31	opposition	-1548 Nov 16 j 07:13	11°♄55'49	-6°-29'-16
minimum elong	-1556 May 08 j 07:27	2°♄59'10	8°35'30	min. Earth dist.	-1548 Nov 17 j 21:34	11°♄53'54	43.62922 AU
retrograde	-1556 Aug 18 j 09:15	4°♄31'52		direct	-1547 Feb 05 j 23:22	10°♄53'10	
opposition	-1556 Nov 08 j 02:51	3°♄30'48	-8°-50'-4	max. Earth dist.	-1547 May 16 j 15:35	12°♄25'06	45.52683 AU
min. Earth dist.	-1556 Nov 09 j 08:17	3°♄29'21	44.99567 AU				
direct	-1555 Jan 28 j 20:12	2°♄29'28		conjunction	-1547 May 18 j 10:27	12°♄27'42	-6°-3'-11
max. Earth dist.	-1555 May 08 j 04:53	3°♄58'55	46.89461 AU	minimum elong	-1547 May 18 j 10:35	12°♄27'42	6°03'11
				retrograde	-1547 Aug 28 j 10:00	14°♄03'16	
conjunction	-1555 May 09 j 15:08	4°♄00'56	-8°-19'-40	opposition	-1547 Nov 17 j 14:31	13°♄01'02	-6°-10'-20
minimum elong	-1555 May 09 j 15:18	4°♄00'57	8°19'41	min. Earth dist.	-1547 Nov 19 j 05:41	12°♄59'04	43.44502 AU
retrograde	-1555 Aug 19 j 18:51	5°♄33'55		direct	-1546 Feb 07 j 09:05	11°♄58'12	
opposition	-1555 Nov 09 j 09:00	4°♄32'43	-8°-33'-29	max. Earth dist.	-1546 May 17 j 22:28	13°♄30'25	45.34171 AU
min. Earth dist.	-1555 Nov 10 j 16:32	4°♄31'09	44.83511 AU				
direct	-1554 Jan 30 j 00:02	3°♄31'13		conjunction	-1546 May 19 j 19:39	13°♄33'11	-5°-44'-53
max. Earth dist.	-1554 May 09 j 11:59	5°♄00'56	46.73363 AU	minimum elong	-1546 May 19 j 19:48	13°♄33'11	5°44'53
					-1546 Aug 01 j 11:24	15°♄	
conjunction	-1554 May 10 j 22:58	5°♄03'00	-8°-3'-34	retrograde	-1546 Aug 29 j 17:53	15°♄09'08	
minimum elong	-1554 May 10 j 23:08	5°♄03'00	8°03'33		-1546 Sep 27 j 05:27	15°♄	
retrograde	-1554 Aug 21 j 02:07	6°♄36'13		opposition	-1546 Nov 18 j 22:03	14°♄06'46	-5°-51'-8
opposition	-1554 Nov 10 j 15:08	5°♄34'53	-8°-16'-37	min. Earth dist.	-1546 Nov 20 j 14:30	14°♄04'43	43.25650 AU
min. Earth dist.	-1554 Nov 11 j 22:46	5°♄33'20	44.67086 AU	direct	-1545 Feb 08 j 17:16	13°♄03'43	
direct	-1553 Jan 31 j 06:50	4°♄33'13		max. Earth dist.	-1545 May 19 j 06:49	14°♄36'18	45.15191 AU
max. Earth dist.	-1553 May 10 j 17:48	6°♄03'08	46.56911 AU				
				conjunction	-1545 May 21 j 05:23	14°♄39'09	-5°-26'-19
conjunction	-1553 May 12 j 06:59	6°♄05'20	-7°-47'-12	minimum elong	-1545 May 21 j 05:30	14°♄39'10	5°26'18
minimum elong	-1553 May 12 j 07:09	6°♄05'21	7°47'12		-1545 Jun 04 j 12:25	15°♄	
retrograde	-1553 Aug 22 j 08:43	7°♄38'50		retrograde	-1545 Aug 31 j 03:17	16°♄15'31	
opposition	-1553 Nov 11 j 21:24	6°♄37'22	-7°-59'-28	opposition	-1545 Nov 20 j 05:48	15°♄12'57	-5°-31'-38
min. Earth dist.	-1553 Nov 13 j 06:51	6°♄35'42	44.50353 AU	min. Earth dist.	-1545 Nov 22 j 00:18	15°♄10'48	43.06331 AU
direct	-1552 Feb 01 j 14:43	5°♄35'31			-1545 Nov 30 j 22:34	15°♄	
max. Earth dist.	-1552 May 11 j 02:06	7°♄05'46	46.40170 AU	direct	-1544 Feb 09 j 23:56	14°♄09'42	
					-1544 Apr 19 j 09:57	15°♄	
conjunction	-1552 May 12 j 15:15	7°♄07'59	-7°-30'-34	max. Earth dist.	-1544 May 19 j 15:22	15°♄42'39	44.95769 AU
minimum elong	-1552 May 12 j 15:25	7°♄08'00	7°30'33				
retrograde	-1552 Aug 22 j 13:17	8°♄41'47		conjunction	-1544 May 21 j 15:11	15°♄45'35	-5°-7'-29
opposition	-1552 Nov 12 j 03:54	7°♄40'11	-7°-42'-1	minimum elong	-1544 May 21 j 15:19	15°♄45'36	5°07'29
min. Earth dist.	-1552 Nov 13 j 13:58	7°♄38'29	44.33349 AU	retrograde	-1544 Aug 31 j 14:10	17°♄22'20	
direct	-1551 Feb 02 j 00:17	6°♄38'09		opposition	-1544 Nov 20 j 13:41	16°♄19'36	-5°-11'-51
max. Earth dist.	-1551 May 12 j 08:23	8°♄08'40	46.23188 AU	min. Earth dist.	-1544 Nov 22 j 08:30	16°♄17'25	42.86585 AU
				direct	-1543 Feb 10 j 06:16	15°♄16'06	



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 23

Attention, astronomical year style is used: The year -1543 in astronomical counting style is the year 1544 BCE in historical counting style.

max. Earth dist.	-1543 May 20 j 22:57	16° <del>8</del> 49'22	44.75920 AU	minimum elong	-1535 Jun 01 j 16:48	26° <del>8</del> 06'48	2°05'23
				retrograde	-1535 Sep 11 j 11:50	27° <del>8</del> 48'00	
conjunction	-1543 May 23 j 00:58	16° <del>8</del> 52'27	-4°-48'-22	opposition	-1535 Nov 30 j 22:53	26° <del>8</del> 43'29	-2°00'-16
minimum elong	-1543 May 23 j 01:05	16° <del>8</del> 52'27	4°48'22	min. Earth dist.	-1535 Dec 03 j 03:23	26° <del>8</del> 40'42	40.96508 AU
retrograde	-1543 Sep 02 j 00:42	18° <del>8</del> 29'36		direct	-1534 Feb 20 j 18:04	25° <del>8</del> 37'48	
opposition	-1543 Nov 21 j 21:52	17° <del>8</del> 26'39	-4°-51'-47	max. Earth dist.	-1534 May 31 j 17:28	27° <del>8</del> 15'35	42.85339 AU
min. Earth dist.	-1543 Nov 23 j 18:46	17° <del>8</del> 24'21	42.66451 AU				
direct	-1542 Feb 11 j 14:35	16° <del>8</del> 22'55		conjunction	-1534 Jun 03 j 05:03	27° <del>8</del> 19'27	-1°-43'-46
max. Earth dist.	-1542 May 22 j 09:00	17° <del>8</del> 56'38	44.55710 AU	minimum elong	-1534 Jun 03 j 05:06	27° <del>8</del> 19'27	1°43'46
				retrograde	-1534 Sep 13 j 00:55	29° <del>8</del> 01'15	
conjunction	-1542 May 24 j 11:12	17° <del>8</del> 59'45	-4°-28'-59	opposition	-1534 Dec 02 j 09:09	27° <del>8</del> 56'32	-1°-37'-28
minimum elong	-1542 May 24 j 11:19	17° <del>8</del> 59'45	4°29'00	min. Earth dist.	-1534 Dec 04 j 14:16	27° <del>8</del> 53'43	40.74072 AU
retrograde	-1542 Sep 03 j 08:31	19° <del>8</del> 37'18		direct	-1533 Feb 22 j 02:20	26° <del>8</del> 50'36	
opposition	-1542 Nov 23 j 06:01	18° <del>8</del> 34'09	-4°-31'-25	max. Earth dist.	-1533 Jun 02 j 04:16	28° <del>8</del> 28'56	42.62732 AU
min. Earth dist.	-1542 Nov 25 j 03:29	18° <del>8</del> 31'49	42.45982 AU				
direct	-1541 Feb 13 j 01:53	17° <del>8</del> 30'09		conjunction	-1533 Jun 04 j 17:50	28° <del>8</del> 32'56	-1°-21'-51
max. Earth dist.	-1541 May 23 j 17:07	19° <del>8</del> 04'14	44.35193 AU	minimum elong	-1533 Jun 04 j 17:52	28° <del>8</del> 32'56	1°21'51
					-1533 Aug 09 j 22:40	0° <del>II</del>	
conjunction	-1541 May 25 j 21:30	19° <del>8</del> 07'29	-4°-9'-20	retrograde	-1533 Sep 14 j 14:56	0° <del>II</del> 15'22	
minimum elong	-1541 May 25 j 21:37	19° <del>8</del> 07'30	4°09'19		-1533 Oct 20 j 13:28	30° <del>R</del> <del>8</del>	
retrograde	-1541 Sep 04 j 18:30	20° <del>8</del> 45'29		opposition	-1533 Dec 03 j 20:04	29° <del>8</del> 10'25	-1°-14'-22
opposition	-1541 Nov 24 j 14:29	19° <del>8</del> 42'07	-4°-10'-44	min. Earth dist.	-1533 Dec 06 j 03:24	29° <del>8</del> 07'28	40.51233 AU
min. Earth dist.	-1541 Nov 26 j 12:59	19° <del>8</del> 39'43	42.25247 AU	direct	-1532 Feb 23 j 11:29	28° <del>8</del> 04'12	
direct	-1540 Feb 14 j 10:38	18° <del>8</del> 37'51		max. Earth dist.	-1532 Jun 02 j 16:45	29° <del>8</del> 43'10	42.39731 AU
max. Earth dist.	-1540 May 24 j 03:10	20° <del>8</del> 12'24	44.14412 AU				
				conjunction	-1532 Jun 05 j 06:49	29° <del>8</del> 47'14	0°-59'-41
conjunction	-1540 May 26 j 08:05	20° <del>8</del> 15'43	-3°-49'-23	minimum elong	-1532 Jun 05 j 06:50	29° <del>8</del> 47'14	0°59'40
minimum elong	-1540 May 26 j 08:10	20° <del>8</del> 15'43	3°49'23		-1532 Jun 13 j 10:14	0° <del>II</del>	
retrograde	-1540 Sep 05 j 02:55	21° <del>8</del> 54'10		retrograde	-1532 Sep 15 j 05:20	1° <del>II</del> 30'17	
opposition	-1540 Nov 24 j 23:15	20° <del>8</del> 50'36	-3°-49'-46	opposition	-1532 Dec 04 j 07:04	0° <del>II</del> 25'05	0°-50'-58
min. Earth dist.	-1540 Nov 26 j 23:02	20° <del>8</del> 48'07	42.04280 AU	min. Earth dist.	-1532 Dec 06 j 14:45	0° <del>II</del> 22'06	40.28012 AU
direct	-1539 Feb 14 j 19:46	19° <del>8</del> 46'05			-1532 Dec 24 j 07:57	30° <del>R</del> <del>8</del>	
max. Earth dist.	-1539 May 25 j 13:07	21° <del>8</del> 21'07	43.93440 AU	direct	-1531 Feb 23 j 23:19	29° <del>8</del> 18'33	
					-1531 Apr 25 j 12:42	0° <del>II</del>	
conjunction	-1539 May 27 j 18:48	21° <del>8</del> 24'30	-3°-29'-9	max. Earth dist.	-1531 Jun 04 j 03:27	0° <del>II</del> 58'04	42.16360 AU
minimum elong	-1539 May 27 j 18:53	21° <del>8</del> 24'30	3°29'08				
retrograde	-1539 Sep 06 j 14:56	23° <del>8</del> 03'27		conjunction	-1531 Jun 06 j 20:02	1° <del>II</del> 02'18	0°-37'-14
opposition	-1539 Nov 26 j 08:08	21° <del>8</del> 59'40	-3°-28'-28	minimum elong	-1531 Jun 06 j 20:03	1° <del>II</del> 02'18	0°37'14
min. Earth dist.	-1539 Nov 28 j 07:51	21° <del>8</del> 57'11	41.83144 AU	retrograde	-1531 Sep 16 j 19:48	2° <del>II</del> 45'59	
direct	-1538 Feb 16 j 02:58	20° <del>8</del> 54'55		opposition	-1531 Dec 05 j 18:23	1° <del>II</del> 40'31	0°-27'-17
max. Earth dist.	-1538 May 26 j 22:25	22° <del>8</del> 30'25	43.72286 AU	min. Earth dist.	-1531 Dec 08 j 03:51	1° <del>II</del> 37'26	40.04465 AU
				direct	-1530 Feb 25 j 10:48	0° <del>II</del> 33'39	
conjunction	-1538 May 29 j 05:46	22° <del>8</del> 33'55	-3°-8'-38	max. Earth dist.	-1530 Jun 05 j 16:50	2° <del>II</del> 13'51	41.92668 AU
minimum elong	-1538 May 29 j 05:51	22° <del>8</del> 33'55	3°08'38				
retrograde	-1538 Sep 08 j 04:31	24° <del>8</del> 13'23		conjunction	-1530 Jun 08 j 09:43	2° <del>II</del> 18'08	0°-14'-32
opposition	-1538 Nov 27 j 17:28	23° <del>8</del> 09'25	-3°-6'-53	minimum elong	-1530 Jun 08 j 09:43	2° <del>II</del> 18'08	0°14'31
min. Earth dist.	-1538 Nov 29 j 18:57	23° <del>8</del> 06'50	41.61835 AU	behind sun begin	-1530 Jun 08 j 07:07	2° <del>II</del> 17'59	
direct	-1537 Feb 17 j 09:58	22° <del>8</del> 04'26		behind sun end	-1530 Jun 08 j 12:20	2° <del>II</del> 18'18	
max. Earth dist.	-1537 May 28 j 09:53	23° <del>8</del> 40'33	43.50952 AU	retrograde	-1530 Sep 18 j 06:10	4° <del>II</del> 02'28	
				opposition	-1530 Dec 07 j 06:06	2° <del>II</del> 56'42	0°-3'-18
conjunction	-1537 May 30 j 17:12	23° <del>8</del> 44'03	-2°-47'-50	min. Earth dist.	-1530 Dec 09 j 16:26	2° <del>II</del> 53'33	39.80623 AU
minimum elong	-1537 May 30 j 17:17	23° <del>8</del> 44'04	2°47'50	asc. node	-1529 Jan 26 j 11:19	2° <del>II</del> 01'23	
retrograde	-1537 Sep 09 j 14:42	25° <del>8</del> 24'04		direct	-1529 Feb 27 j 00:44	1° <del>II</del> 49'30	
opposition	-1537 Nov 29 j 02:51	24° <del>8</del> 19'56	-2°-44'-59	max. Earth dist.	-1529 Jun 07 j 05:09	3° <del>II</del> 30'18	41.68718 AU
min. Earth dist.	-1537 Dec 01 j 04:29	24° <del>8</del> 17'20	41.40326 AU				
direct	-1536 Feb 18 j 20:58	23° <del>8</del> 14'43		conjunction	-1529 Jun 09 j 23:36	3° <del>II</del> 34'44	0°08'31
max. Earth dist.	-1536 May 28 j 19:23	24° <del>8</del> 51'20	43.29393 AU	minimum elong	-1529 Jun 09 j 23:36	3° <del>II</del> 34'44	0°08'32
				behind sun begin	-1529 Jun 09 j 17:56	3° <del>II</del> 34'23	
conjunction	-1536 May 31 j 04:49	24° <del>8</del> 55'00	-2°-26'-46	behind sun end	-1529 Jun 10 j 05:16	3° <del>II</del> 35'06	
minimum elong	-1536 May 31 j 04:52	24° <del>8</del> 55'00	2°26'45	retrograde	-1529 Sep 19 j 18:33	5° <del>II</del> 19'43	
retrograde	-1536 Sep 10 j 01:55	26° <del>8</del> 35'36		opposition	-1529 Dec 08 j 17:58	4° <del>II</del> 13'41	0°20'58
opposition	-1536 Nov 29 j 12:41	25° <del>8</del> 31'16	-2°-22'-46	min. Earth dist.	-1529 Dec 11 j 04:52	4° <del>II</del> 10'29	39.56571 AU
min. Earth dist.	-1536 Dec 01 j 15:44	25° <del>8</del> 28'35	41.18580 AU	direct	-1528 Feb 28 j 12:54	3° <del>II</del> 06'07	
direct	-1535 Feb 19 j 07:14	24° <del>8</del> 25'50		max. Earth dist.	-1528 Jun 07 j 18:28	4° <del>II</del> 47'36	41.44561 AU
max. Earth dist.	-1535 May 30 j 06:51	26° <del>8</del> 03'04	43.07539 AU				
				conjunction	-1528 Jun 10 j 13:56	4° <del>II</del> 52'08	0°31'43
conjunction	-1535 Jun 01 j 16:44	26° <del>8</del> 06'48	-2°-5'-24	minimum elong	-1528 Jun 10 j 13:55	4° <del>II</del> 52'07	0°31'45



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Attention, astronomical year style is used: The year -1528 in astronomical counting style is the year 1529 BCE in historical counting style.

retrograde	-1528 Sep 20 j 08:17	6°II37'48		direct	-1519 Mar 11 j 13:30	15°II20'01	
opposition	-1528 Dec 09 j 06:28	5°II31'27	0°45'31	max. Earth dist.	-1519 Jun 20 j 12:42	17°II08'53	39.21142 AU
min. Earth dist.	-1528 Dec 11 j 18:55	5°II28'09	39.32361 AU				
direct	-1527 Feb 28 j 22:56	4°II23'33		conjunction	-1519 Jun 23 j 17:06	17°II14'22	4°11'33
max. Earth dist.	-1527 Jun 09 j 08:45	6°II05'46	41.20283 AU	minimum elong	-1519 Jun 23 j 16:58	17°II14'22	4°11'35
				retrograde	-1519 Oct 03 j 16:51	19°II07'33	
conjunction	-1527 Jun 12 j 04:22	6°II10'20	0°55'13	opposition	-1519 Dec 21 j 16:50	17°II58'28	4°38'19
minimum elong	-1527 Jun 12 j 04:20	6°II10'20	0°55'14	min. Earth dist.	-1519 Dec 24 j 12:39	17°II54'35	37.08814 AU
retrograde	-1527 Sep 21 j 23:35	7°II56'44		direct	-1518 Mar 13 j 06:05	16°II47'16	
opposition	-1527 Dec 10 j 19:10	6°II50'06	1°10'22	max. Earth dist.	-1518 Jun 22 j 07:34	18°II37'09	38.95348 AU
min. Earth dist.	-1527 Dec 13 j 07:14	6°II46'48	39.08055 AU				
direct	-1526 Mar 02 j 10:52	5°II41'50		conjunction	-1518 Jun 25 j 11:59	18°II42'41	4°37'01
max. Earth dist.	-1526 Jun 10 j 21:58	7°II24'45	40.95907 AU	minimum elong	-1518 Jun 25 j 11:49	18°II42'40	4°37'03
				retrograde	-1518 Oct 05 j 10:35	20°II36'48	
conjunction	-1526 Jun 13 j 19:20	7°II29'28	1°18'57	opposition	-1518 Dec 23 j 09:39	19°II27'21	5°05'20
minimum elong	-1526 Jun 13 j 19:18	7°II29'27	1°18'59	min. Earth dist.	-1518 Dec 26 j 06:20	19°II23'23	36.83081 AU
retrograde	-1526 Sep 23 j 16:45	9°II16'36		direct	-1517 Mar 15 j 00:23	18°II15'44	
opposition	-1526 Dec 12 j 08:15	8°II09'40	1°35'28	max. Earth dist.	-1517 Jun 24 j 01:32	20°II06'33	38.69450 AU
min. Earth dist.	-1526 Dec 14 j 21:50	8°II06'17	38.83683 AU				
direct	-1525 Mar 03 j 23:05	7°II01'04		conjunction	-1517 Jun 27 j 07:10	20°II12'13	5°02'38
max. Earth dist.	-1525 Jun 12 j 13:52	8°II44'51	40.71457 AU	minimum elong	-1517 Jun 27 j 07:00	20°II12'12	5°02'39
				retrograde	-1517 Oct 07 j 05:21	22°II07'18	
conjunction	-1525 Jun 15 j 10:53	8°II49'35	1°42'57	opposition	-1517 Dec 25 j 02:57	20°II57'29	5°32'32
minimum elong	-1525 Jun 15 j 10:50	8°II49'34	1°42'57	min. Earth dist.	-1517 Dec 27 j 23:48	20°II53'29	36.57296 AU
retrograde	-1525 Sep 25 j 08:07	10°II37'30		direct	-1516 Mar 15 j 17:15	19°II45'25	
opposition	-1525 Dec 13 j 21:49	9°II30'17	2°00'51	max. Earth dist.	-1516 Jun 24 j 20:30	21°II37'14	38.43500 AU
min. Earth dist.	-1525 Dec 16 j 11:39	9°II26'52	38.59228 AU				
direct	-1524 Mar 04 j 14:40	8°II21'21		conjunction	-1516 Jun 28 j 02:47	21°II43'00	5°28'23
max. Earth dist.	-1524 Jun 13 j 03:51	10°II05'53	40.46911 AU	minimum elong	-1516 Jun 28 j 02:36	21°II43'00	5°28'25
				retrograde	-1516 Oct 07 j 23:35	23°II39'06	
conjunction	-1524 Jun 16 j 02:34	10°II10'46	2°07'10	opposition	-1516 Dec 25 j 20:59	22°II28'54	5°59'52
minimum elong	-1524 Jun 16 j 02:30	10°II10'46	2°07'12	min. Earth dist.	-1516 Dec 28 j 19:03	22°II24'49	36.31515 AU
retrograde	-1524 Sep 26 j 00:50	11°II59'31		direct	-1515 Mar 17 j 09:22	21°II16'24	
opposition	-1524 Dec 14 j 11:44	10°II52'01	2°26'30	max. Earth dist.	-1515 Jun 26 j 16:57	23°II09'20	38.17597 AU
min. Earth dist.	-1524 Dec 17 j 02:23	10°II48'32	38.34674 AU				
direct	-1523 Mar 06 j 04:04	9°II42'45		conjunction	-1515 Jun 29 j 22:58	23°II15'07	5°54'15
max. Earth dist.	-1523 Jun 14 j 19:41	11°II28'09	40.22208 AU	minimum elong	-1515 Jun 29 j 22:46	23°II15'07	5°54'16
				retrograde	-1515 Oct 09 j 20:32	25°II12'15	
conjunction	-1523 Jun 17 j 18:58	11°II33'07	2°31'37	opposition	-1515 Dec 27 j 15:19	24°II01'41	6°27'20
minimum elong	-1523 Jun 17 j 18:53	11°II33'06	2°31'38	min. Earth dist.	-1515 Dec 30 j 12:42	23°II57'36	36.05820 AU
retrograde	-1523 Sep 27 j 14:42	13°II22'42		direct	-1514 Mar 19 j 01:45	22°II48'44	
opposition	-1523 Dec 16 j 02:11	12°II14'56	2°52'23	max. Earth dist.	-1514 Jun 28 j 12:25	24°II42'42	37.91783 AU
min. Earth dist.	-1523 Dec 18 j 18:17	12°II11'20	38.09946 AU				
direct	-1522 Mar 07 j 18:30	11°II05'18		conjunction	-1514 Jul 01 j 19:44	24°II48'38	6°20'12
max. Earth dist.	-1522 Jun 16 j 11:33	12°II51'34	39.97311 AU	minimum elong	-1514 Jul 01 j 19:30	24°II48'37	6°20'13
				retrograde	-1514 Oct 11 j 18:59	26°II46'51	
conjunction	-1522 Jun 19 j 11:46	12°II56'38	2°56'18	opposition	-1514 Dec 29 j 10:27	25°II35'54	6°54'54
minimum elong	-1522 Jun 19 j 11:40	12°II56'38	2°56'20	min. Earth dist.	-1513 Jan 01 j 09:02	25°II31'44	35.80253 AU
retrograde	-1522 Sep 29 j 07:58	14°II47'06		direct	-1513 Mar 20 j 18:27	24°II22'32	
opposition	-1522 Dec 17 j 17:04	13°II39'01	3°18'32	max. Earth dist.	-1513 Jun 30 j 10:43	26°II17'44	37.66097 AU
min. Earth dist.	-1522 Dec 20 j 09:22	13°II35'24	37.85004 AU				
direct	-1521 Mar 09 j 07:55	12°II29'02		conjunction	-1513 Jul 03 j 17:12	26°II23'40	6°46'12
max. Earth dist.	-1521 Jun 18 j 03:01	14°II16'07	39.72154 AU	minimum elong	-1513 Jul 03 j 16:58	26°II23'39	6°46'14
				retrograde	-1513 Oct 13 j 17:41	28°II22'59	
conjunction	-1521 Jun 21 j 05:09	14°II21'21	3°21'11	opposition	-1513 Dec 31 j 06:08	27°II11'41	7°22'32
minimum elong	-1521 Jun 21 j 05:03	14°II21'21	3°21'12	min. Earth dist.	-1512 Jan 03 j 04:23	27°II07'31	35.54820 AU
retrograde	-1521 Oct 01 j 02:31	16°II12'43		direct	-1512 Mar 21 j 15:39	25°II57'54	
opposition	-1521 Dec 19 j 08:32	15°II04'19	3°44'54	max. Earth dist.	-1512 Jul 01 j 07:21	27°II54'13	37.40543 AU
min. Earth dist.	-1521 Dec 22 j 02:55	15°II00'33	37.59818 AU				
direct	-1520 Mar 09 j 20:21	13°II53'56		conjunction	-1512 Jul 04 j 15:08	28°II00'18	7°12'15
max. Earth dist.	-1520 Jun 18 j 20:45	15°II41'59	39.46758 AU	minimum elong	-1512 Jul 04 j 14:53	28°II00'17	7°12'17
					-1512 Oct 07 j 09:38	0°☾	
conjunction	-1520 Jun 21 j 23:02	15°II47'16	3°46'17	retrograde	-1512 Oct 14 j 18:40	0°☾00'46	
minimum elong	-1520 Jun 21 j 22:55	15°II47'15	3°46'19		-1512 Oct 21 j 23:30	30°☾II	
retrograde	-1520 Oct 01 j 20:43	17°II39'31		opposition	-1511 Jan 01 j 02:27	28°II49'07	7°50'13
opposition	-1520 Dec 20 j 00:28	16°II30'48	4°11'30	min. Earth dist.	-1511 Jan 04 j 01:08	28°II44'53	35.29527 AU
min. Earth dist.	-1520 Dec 22 j 18:55	16°II27'01	37.34406 AU	direct	-1511 Mar 23 j 11:51	27°II34'55	



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 25

Attention, astronomical year style is used: The year -1511 in astronomical counting style is the year 1512 BCE in historical counting style.

max. Earth dist.	-1511 Jul 03 j 06:23	29° $\Pi$ 32'31	37.15075 AU	max. Earth dist.	-1503 Jul 17 j 18:27	13° $\Theta$ 40'34	35.13232 AU
conjunction	-1511 Jul 06 j 13:47	29° $\Pi$ 38'37	7°38'19	conjunction	-1503 Jul 21 j 04:04	13° $\Theta$ 47'22	11°03'48
minimum elong	-1511 Jul 06 j 13:32	29° $\Pi$ 38'36	7°38'21	minimum elong	-1503 Jul 21 j 03:43	13° $\Theta$ 47'20	11°03'50
	-1511 Jul 18 j 04:14	0° $\Theta$		retrograde	-1503 Oct 31 j 12:13	15° $\Theta$ 59'02	
retrograde	-1511 Oct 16 j 16:38	1° $\Theta$ 40'16		opposition	-1502 Jan 17 j 01:55	14° $\Theta$ 43'41	11°56'33
opposition	-1510 Jan 02 j 23:34	0° $\Theta$ 28'16	8°17'56	min. Earth dist.	-1502 Jan 20 j 02:42	14° $\Theta$ 39'03	33.05093 AU
min. Earth dist.	-1510 Jan 05 j 23:04	0° $\Theta$ 23'57	35.04301 AU	direct	-1502 Apr 08 j 04:37	13° $\Theta$ 25'11	
	-1510 Jan 23 j 00:44	30° $\mathbb{R}$ $\Pi$		max. Earth dist.	-1502 Jul 19 j 23:45	15° $\Theta$ 34'34	34.88886 AU
direct	-1510 Mar 25 j 08:51	29° $\Pi$ 13'39		conjunction	-1502 Jul 23 j 09:04	15° $\Theta$ 41'25	11°28'26
	-1510 May 23 j 22:16	0° $\Theta$		minimum elong	-1502 Jul 23 j 08:41	15° $\Theta$ 41'23	11°28'27
max. Earth dist.	-1510 Jul 05 j 05:03	1° $\Theta$ 12'26	36.89657 AU	retrograde	-1502 Nov 02 j 16:57	17° $\Theta$ 54'26	
conjunction	-1510 Jul 08 j 13:09	1° $\Theta$ 18'40	8°04'23	opposition	-1501 Jan 19 j 05:42	16° $\Theta$ 38'40	12°22'44
minimum elong	-1510 Jul 08 j 12:52	1° $\Theta$ 18'39	8°04'24	min. Earth dist.	-1501 Jan 22 j 07:04	16° $\Theta$ 33'58	32.81264 AU
retrograde	-1510 Oct 18 j 15:43	3° $\Theta$ 21'30		direct	-1501 Apr 10 j 05:30	15° $\Theta$ 19'42	
opposition	-1509 Jan 04 j 21:08	2° $\Theta$ 09'09	8°45'39	max. Earth dist.	-1501 Jul 22 j 06:40	17° $\Theta$ 30'37	34.64974 AU
min. Earth dist.	-1509 Jan 07 j 20:33	2° $\Theta$ 04'49	34.79119 AU	conjunction	-1501 Jul 25 j 14:47	17° $\Theta$ 37'26	11°52'39
direct	-1509 Mar 27 j 05:44	0° $\Theta$ 54'05		minimum elong	-1501 Jul 25 j 14:25	17° $\Theta$ 37'24	11°52'40
max. Earth dist.	-1509 Jul 07 j 04:19	2° $\Theta$ 54'06	36.64235 AU	retrograde	-1501 Nov 04 j 22:59	19° $\Theta$ 51'51	
conjunction	-1509 Jul 10 j 13:21	3° $\Theta$ 00'28	8°30'25	opposition	-1500 Jan 21 j 10:22	18° $\Theta$ 35'41	12°48'28
minimum elong	-1509 Jul 10 j 13:04	3° $\Theta$ 00'26	8°30'26	min. Earth dist.	-1500 Jan 24 j 10:11	18° $\Theta$ 31'03	32.57880 AU
retrograde	-1509 Oct 20 j 15:21	5° $\Theta$ 04'31		direct	-1500 Apr 11 j 09:34	17° $\Theta$ 16'16	
opposition	-1508 Jan 06 j 19:45	3° $\Theta$ 51'46	9°13'21	max. Earth dist.	-1500 Jul 23 j 12:46	19° $\Theta$ 28'38	34.41503 AU
min. Earth dist.	-1508 Jan 09 j 20:39	3° $\Theta$ 47'19	34.53943 AU	conjunction	-1500 Jul 26 j 21:07	19° $\Theta$ 35'32	12°16'23
direct	-1508 Mar 28 j 01:17	2° $\Theta$ 36'15		minimum elong	-1500 Jul 26 j 20:43	19° $\Theta$ 35'30	12°16'24
max. Earth dist.	-1508 Jul 08 j 05:15	4° $\Theta$ 37'34	36.38825 AU	retrograde	-1500 Nov 06 j 06:55	21° $\Theta$ 51'23	
conjunction	-1508 Jul 11 j 14:01	4° $\Theta$ 43'58	8°56'22	opposition	-1499 Jan 22 j 15:55	20° $\Theta$ 34'49	13°13'39
minimum elong	-1508 Jul 11 j 13:43	4° $\Theta$ 43'57	8°56'23	min. Earth dist.	-1499 Jan 25 j 16:05	20° $\Theta$ 30'09	32.34950 AU
retrograde	-1508 Oct 21 j 16:31	6° $\Theta$ 49'15		direct	-1499 Apr 13 j 11:46	19° $\Theta$ 14'59	
opposition	-1507 Jan 07 j 18:56	5° $\Theta$ 36'06	9°40'58	max. Earth dist.	-1499 Jul 25 j 21:54	21° $\Theta$ 29'00	34.18472 AU
min. Earth dist.	-1507 Jan 10 j 19:14	5° $\Theta$ 31'40	34.28788 AU	conjunction	-1499 Jul 29 j 04:27	21° $\Theta$ 35'49	12°39'34
direct	-1507 Mar 29 j 23:13	4° $\Theta$ 20'07		minimum elong	-1499 Jul 29 j 04:04	21° $\Theta$ 35'47	12°39'36
max. Earth dist.	-1507 Jul 10 j 05:15	6° $\Theta$ 22'37	36.13434 AU	retrograde	-1499 Nov 08 j 15:07	23° $\Theta$ 53'06	
conjunction	-1507 Jul 13 j 15:28	6° $\Theta$ 29'12	9°22'14	opposition	-1498 Jan 24 j 22:13	22° $\Theta$ 36'10	13°38'17
minimum elong	-1507 Jul 13 j 15:09	6° $\Theta$ 29'10	9°22'16	min. Earth dist.	-1498 Jan 27 j 21:23	22° $\Theta$ 31'33	32.12436 AU
retrograde	-1507 Oct 23 j 19:35	8° $\Theta$ 35'44		direct	-1498 Apr 15 j 17:19	21° $\Theta$ 15'54	
opposition	-1506 Jan 09 j 18:46	7° $\Theta$ 22'09	10°08'30	max. Earth dist.	-1498 Jul 28 j 05:32	23° $\Theta$ 31'24	33.95845 AU
min. Earth dist.	-1506 Jan 12 j 20:22	7° $\Theta$ 17'36	34.03694 AU	conjunction	-1498 Jul 31 j 12:36	23° $\Theta$ 38'19	13°02'10
direct	-1506 Mar 31 j 21:25	6° $\Theta$ 05'40		minimum elong	-1498 Jul 31 j 12:12	23° $\Theta$ 38'17	13°02'11
max. Earth dist.	-1506 Jul 12 j 08:19	8° $\Theta$ 09'33	35.88114 AU	retrograde	-1498 Nov 11 j 02:16	25° $\Theta$ 57'04	
conjunction	-1506 Jul 15 j 17:44	8° $\Theta$ 16'08	9°47'58	opposition	-1497 Jan 27 j 05:33	24° $\Theta$ 39'45	14°02'15
minimum elong	-1506 Jul 15 j 17:23	8° $\Theta$ 16'06	9°47'59	min. Earth dist.	-1497 Jan 30 j 04:40	24° $\Theta$ 35'07	31.90323 AU
retrograde	-1506 Oct 25 j 22:53	10° $\Theta$ 23'55		direct	-1497 Apr 17 j 22:34	23° $\Theta$ 19'04	
opposition	-1505 Jan 11 j 19:26	9° $\Theta$ 09'54	10°35'53	max. Earth dist.	-1497 Jul 30 j 16:10	25° $\Theta$ 36'13	33.73591 AU
min. Earth dist.	-1505 Jan 14 j 20:51	9° $\Theta$ 05'20	33.78695 AU	conjunction	-1497 Aug 02 j 21:40	25° $\Theta$ 43'04	13°24'07
direct	-1505 Apr 02 j 23:11	7° $\Theta$ 52'55		minimum elong	-1497 Aug 02 j 21:17	25° $\Theta$ 43'02	13°24'09
max. Earth dist.	-1505 Jul 14 j 09:56	9° $\Theta$ 58'03	35.62920 AU	retrograde	-1497 Nov 13 j 12:54	28° $\Theta$ 03'15	
conjunction	-1505 Jul 17 j 20:29	10° $\Theta$ 04'47	10°13'30	opposition	-1496 Jan 29 j 13:56	26° $\Theta$ 45'34	14°25'32
minimum elong	-1505 Jul 17 j 20:08	10° $\Theta$ 04'45	10°13'32	min. Earth dist.	-1496 Feb 01 j 12:47	26° $\Theta$ 40'54	31.68571 AU
retrograde	-1505 Oct 28 j 03:34	12° $\Theta$ 13'51		direct	-1496 Apr 19 j 07:40	25° $\Theta$ 24'27	
opposition	-1504 Jan 13 j 20:46	10° $\Theta$ 59'22	11°03'03	max. Earth dist.	-1496 Aug 01 j 01:49	27° $\Theta$ 43'04	33.51724 AU
min. Earth dist.	-1504 Jan 16 j 22:22	10° $\Theta$ 54'46	33.53881 AU	conjunction	-1496 Aug 04 j 07:27	27° $\Theta$ 50'00	13°45'22
direct	-1504 Apr 03 j 23:45	9° $\Theta$ 41'53		minimum elong	-1496 Aug 04 j 07:02	27° $\Theta$ 49'58	13°45'23
max. Earth dist.	-1504 Jul 15 j 14:19	11° $\Theta$ 48'26	35.37926 AU		-1496 Oct 19 j 10:09	0° $\mathbb{Q}$	
conjunction	-1504 Jul 19 j 00:04	11° $\Theta$ 55'11	10°38'48	retrograde	-1496 Nov 15 j 01:31	0° $\mathbb{Q}$ 11'37	
minimum elong	-1504 Jul 18 j 23:42	11° $\Theta$ 55'09	10°38'50		-1496 Dec 11 j 22:50	30° $\mathbb{R}$ $\Theta$	
retrograde	-1504 Oct 29 j 06:39	14° $\Theta$ 05'32		opposition	-1495 Jan 30 j 23:04	28° $\Theta$ 53'32	14°48'02
opposition	-1503 Jan 14 j 23:01	12° $\Theta$ 50'37	11°29'58	min. Earth dist.	-1495 Feb 02 j 20:51	28° $\Theta$ 48'55	31.47214 AU
min. Earth dist.	-1503 Jan 18 j 00:48	12° $\Theta$ 45'58	33.29316 AU	direct	-1495 Apr 21 j 16:16	27° $\Theta$ 32'00	
direct	-1503 Apr 06 j 02:08	11° $\Theta$ 32'37		max. Earth dist.	-1495 Aug 03 j 13:34	29° $\Theta$ 52'10	33.30245 AU



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 26

Attention, astronomical year style is used: The year -1495 in astronomical counting style is the year 1496 BCE in historical counting style.

conjunction	-1495 Aug 06 j 18:07	29° $\mathring{S}$ 59'05	14°05'50	direct	-1487 May 09 j 15:12	15° $\mathring{Q}$ 43'41	
minimum elong	-1495 Aug 06 j 17:44	29° $\mathring{S}$ 59'03	14°05'52	max. Earth dist.	-1487 Aug 22 j 17:29	18° $\mathring{Q}$ 15'39	31.80397 AU
	-1495 Aug 07 j 04:21	0° $\mathring{Q}$					
retrograde	-1495 Nov 17 j 12:00	2° $\mathring{Q}$ 22'06		conjunction	-1487 Aug 25 j 08:59	18° $\mathring{Q}$ 21'47	16°11'22
opposition	-1494 Feb 02 j 09:16	1° $\mathring{Q}$ 03'37	15°09'41	minimum elong	-1487 Aug 25 j 08:44	18° $\mathring{Q}$ 21'46	16°11'24
min. Earth dist.	-1494 Feb 05 j 07:16	0° $\mathring{Q}$ 58'58	31.26253 AU	retrograde	-1487 Dec 06 j 11:12	20° $\mathring{Q}$ 55'10	
	-1494 Mar 19 j 22:50	30° $\mathring{R}$ $\mathring{S}$		opposition	-1486 Feb 21 j 01:03	19° $\mathring{Q}$ 33'42	17°20'52
direct	-1494 Apr 24 j 01:06	29° $\mathring{S}$ 41'39		min. Earth dist.	-1486 Feb 23 j 10:35	19° $\mathring{Q}$ 29'43	29.81371 AU
	-1494 May 28 j 10:03	0° $\mathring{Q}$		direct	-1486 May 12 j 07:02	18° $\mathring{Q}$ 08'41	
max. Earth dist.	-1494 Aug 06 j 01:53	2° $\mathring{Q}$ 03'20	33.09209 AU	max. Earth dist.	-1486 Aug 25 j 13:24	20° $\mathring{Q}$ 42'05	31.65370 AU
conjunction	-1494 Aug 09 j 05:32	2° $\mathring{Q}$ 10'14	14°25'27	conjunction	-1486 Aug 28 j 02:00	20° $\mathring{Q}$ 47'59	16°21'00
minimum elong	-1494 Aug 09 j 05:08	2° $\mathring{Q}$ 10'12	14°25'27	minimum elong	-1486 Aug 28 j 01:46	20° $\mathring{Q}$ 47'58	16°21'00
retrograde	-1494 Nov 20 j 01:11	4° $\mathring{Q}$ 34'38		retrograde	-1486 Dec 09 j 05:12	23° $\mathring{Q}$ 22'30	
opposition	-1493 Feb 04 j 20:06	3° $\mathring{Q}$ 15'45	15°30'24	opposition	-1485 Feb 23 j 18:53	22° $\mathring{Q}$ 00'46	17°30'36
min. Earth dist.	-1493 Feb 07 j 16:28	3° $\mathring{Q}$ 11'10	31.05750 AU	min. Earth dist.	-1485 Feb 26 j 03:14	21° $\mathring{Q}$ 56'52	29.66938 AU
direct	-1493 Apr 26 j 11:37	1° $\mathring{Q}$ 53'19		direct	-1485 May 14 j 23:44	20° $\mathring{Q}$ 35'32	
max. Earth dist.	-1493 Aug 08 j 14:50	4° $\mathring{Q}$ 16'30	32.88657 AU	max. Earth dist.	-1485 Aug 28 j 08:50	23° $\mathring{Q}$ 10'11	31.51223 AU
conjunction	-1493 Aug 11 j 17:46	4° $\mathring{Q}$ 23'23	14°44'07	conjunction	-1485 Aug 30 j 19:30	23° $\mathring{Q}$ 15'56	16°29'01
minimum elong	-1493 Aug 11 j 17:24	4° $\mathring{Q}$ 23'21	14°44'09	minimum elong	-1485 Aug 30 j 19:18	23° $\mathring{Q}$ 15'55	16°29'02
retrograde	-1493 Nov 22 j 13:44	6° $\mathring{Q}$ 49'09		retrograde	-1485 Dec 12 j 01:57	25° $\mathring{Q}$ 51'31	
opposition	-1492 Feb 07 j 08:05	5° $\mathring{Q}$ 29'51	15°50'05	opposition	-1484 Feb 26 j 13:25	24° $\mathring{Q}$ 29'33	17°38'37
min. Earth dist.	-1492 Feb 10 j 04:33	5° $\mathring{Q}$ 25'14	30.85774 AU	min. Earth dist.	-1484 Feb 28 j 18:51	24° $\mathring{Q}$ 25'49	29.53350 AU
direct	-1492 Apr 27 j 20:14	4° $\mathring{Q}$ 06'59		direct	-1484 May 16 j 18:20	23° $\mathring{Q}$ 04'05	
max. Earth dist.	-1492 Aug 10 j 05:41	6° $\mathring{Q}$ 31'42	32.68692 AU	max. Earth dist.	-1484 Aug 30 j 05:21	25° $\mathring{Q}$ 39'59	31.37923 AU
conjunction	-1492 Aug 13 j 06:30	6° $\mathring{Q}$ 38'28	15°01'46	conjunction	-1484 Sep 01 j 13:33	25° $\mathring{Q}$ 45'31	16°35'25
minimum elong	-1492 Aug 13 j 06:07	6° $\mathring{Q}$ 38'26	15°01'47	minimum elong	-1484 Sep 01 j 13:22	25° $\mathring{Q}$ 45'30	16°35'25
retrograde	-1492 Nov 24 j 02:12	9° $\mathring{Q}$ 05'34		retrograde	-1484 Dec 13 j 20:33	28° $\mathring{Q}$ 22'07	
opposition	-1491 Feb 08 j 20:47	7° $\mathring{Q}$ 45'52	16°08'38	opposition	-1483 Feb 28 j 08:49	26° $\mathring{Q}$ 59'54	17°44'50
min. Earth dist.	-1491 Feb 11 j 15:02	7° $\mathring{Q}$ 41'22	30.66403 AU	min. Earth dist.	-1483 Mar 02 j 13:17	26° $\mathring{Q}$ 56'14	29.40583 AU
direct	-1491 Apr 30 j 09:16	6° $\mathring{Q}$ 22'33		direct	-1483 May 19 j 11:45	25° $\mathring{Q}$ 34'14	
max. Earth dist.	-1491 Aug 12 j 19:51	8° $\mathring{Q}$ 48'40	32.49383 AU	max. Earth dist.	-1483 Sep 02 j 02:35	28° $\mathring{Q}$ 11'16	31.25489 AU
conjunction	-1491 Aug 15 j 20:01	8° $\mathring{Q}$ 55'26	15°18'18	conjunction	-1483 Sep 04 j 08:12	28° $\mathring{Q}$ 16'35	16°40'07
minimum elong	-1491 Aug 15 j 19:41	8° $\mathring{Q}$ 55'24	15°18'19	minimum elong	-1483 Sep 04 j 08:05	28° $\mathring{Q}$ 16'35	16°40'07
retrograde	-1491 Nov 26 j 16:18	11° $\mathring{Q}$ 23'51			-1483 Oct 21 j 12:30	0° $\mathring{Q}$	
opposition	-1490 Feb 11 j 10:14	10° $\mathring{Q}$ 03'43	16°25'57	retrograde	-1483 Dec 16 j 16:34	0° $\mathring{Q}$ 54'05	
min. Earth dist.	-1490 Feb 14 j 03:52	9° $\mathring{Q}$ 59'15	30.47736 AU		-1482 Feb 13 j 23:40	30° $\mathring{R}$ $\mathring{Q}$	
direct	-1490 May 02 j 19:54	8° $\mathring{Q}$ 40'00		opposition	-1482 Mar 03 j 04:35	29° $\mathring{Q}$ 31'39	17°49'13
max. Earth dist.	-1490 Aug 15 j 13:08	11° $\mathring{Q}$ 07'43	32.30835 AU	min. Earth dist.	-1482 Mar 05 j 05:58	29° $\mathring{Q}$ 28'12	29.28645 AU
				direct	-1482 May 22 j 07:51	28° $\mathring{Q}$ 05'48	
conjunction	-1490 Aug 18 j 10:21	11° $\mathring{Q}$ 14'15	15°33'37		-1482 Aug 17 j 08:29	0° $\mathring{Q}$	
minimum elong	-1490 Aug 18 j 10:00	11° $\mathring{Q}$ 14'13	15°33'37	max. Earth dist.	-1482 Sep 04 j 23:40	0° $\mathring{Q}$ 43'50	31.13916 AU
retrograde	-1490 Nov 29 j 06:55	13° $\mathring{Q}$ 43'57					
opposition	-1489 Feb 14 j 00:45	12° $\mathring{Q}$ 23'26	16°41'56	conjunction	-1482 Sep 07 j 03:22	0° $\mathring{Q}$ 48'59	16°43'04
min. Earth dist.	-1489 Feb 16 j 16:09	12° $\mathring{Q}$ 19'06	30.29841 AU	minimum elong	-1482 Sep 07 j 03:15	0° $\mathring{Q}$ 48'59	16°43'05
direct	-1489 May 05 j 09:30	10° $\mathring{Q}$ 59'20		retrograde	-1482 Dec 19 j 12:54	3° $\mathring{Q}$ 27'18	
max. Earth dist.	-1489 Aug 18 j 04:59	13° $\mathring{Q}$ 28'25	32.13122 AU	opposition	-1481 Mar 06 j 01:15	2° $\mathring{Q}$ 04'39	17°51'41
				min. Earth dist.	-1481 Mar 08 j 01:16	2° $\mathring{Q}$ 01'17	29.17565 AU
conjunction	-1489 Aug 21 j 01:08	13° $\mathring{Q}$ 34'54	15°47'37	direct	-1481 May 25 j 01:56	0° $\mathring{Q}$ 38'38	
minimum elong	-1489 Aug 21 j 00:50	13° $\mathring{Q}$ 34'52	15°47'38	max. Earth dist.	-1481 Sep 07 j 22:28	3° $\mathring{Q}$ 17'41	31.03259 AU
	-1489 Sep 29 j 11:13	15° $\mathring{Q}$					
retrograde	-1489 Dec 01 j 23:53	16° $\mathring{Q}$ 05'52		conjunction	-1481 Sep 09 j 22:46	3° $\mathring{Q}$ 22'31	16°44'14
	-1488 Feb 07 j 12:36	15° $\mathring{R}$ $\mathring{Q}$		minimum elong	-1481 Sep 09 j 22:43	3° $\mathring{Q}$ 22'31	16°44'14
opposition	-1488 Feb 16 j 16:04	14° $\mathring{Q}$ 45'00	16°56'28	retrograde	-1481 Dec 22 j 08:31	6° $\mathring{Q}$ 01'34	
min. Earth dist.	-1488 Feb 19 j 05:47	14° $\mathring{Q}$ 40'46	30.12807 AU	opposition	-1480 Mar 07 j 22:22	4° $\mathring{Q}$ 38'43	17°52'13
direct	-1488 May 06 j 23:00	13° $\mathring{Q}$ 20'33		min. Earth dist.	-1480 Mar 09 j 19:08	4° $\mathring{Q}$ 35'33	29.07375 AU
	-1488 Jul 28 j 03:41	15° $\mathring{Q}$		direct	-1480 May 26 j 23:05	3° $\mathring{Q}$ 12'33	
max. Earth dist.	-1488 Aug 19 j 23:58	15° $\mathring{Q}$ 51'11	31.96303 AU	max. Earth dist.	-1480 Sep 09 j 20:04	5° $\mathring{Q}$ 52'20	30.93553 AU
conjunction	-1488 Aug 22 j 16:50	15° $\mathring{Q}$ 57'25	16°00'14	conjunction	-1480 Sep 11 j 18:28	5° $\mathring{Q}$ 57'01	16°43'33
minimum elong	-1488 Aug 22 j 16:32	15° $\mathring{Q}$ 57'23	16°00'15	minimum elong	-1480 Sep 11 j 18:26	5° $\mathring{Q}$ 57'00	16°43'34
retrograde	-1488 Dec 03 j 16:20	18° $\mathring{Q}$ 29'36		retrograde	-1480 Dec 24 j 04:31	8° $\mathring{Q}$ 36'40	
opposition	-1487 Feb 18 j 08:11	17° $\mathring{Q}$ 08'25	17°09'28	opposition	-1479 Mar 10 j 19:48	7° $\mathring{Q}$ 13'37	17°50'43
min. Earth dist.	-1487 Feb 20 j 20:09	17° $\mathring{Q}$ 04'17	29.96647 AU	min. Earth dist.	-1479 Mar 12 j 14:32	7° $\mathring{Q}$ 10'37	28.98152 AU



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 27

Attention, astronomical year style is used: The year -1479 in astronomical counting style is the year 1480 BCE in historical counting style.

direct	-1479 May 29 j 18:51	5° <del>11</del> 47'19		minimum elong	-1471 Oct 05 j 07:15	29° <del>11</del> 25'50	15°10'38
max. Earth dist.	-1479 Sep 12 j 20:11	8° <del>11</del> 27'59	30.84878 AU	max. Earth dist.	-1471 Oct 04 j 15:57	29° <del>11</del> 24'17	30.57918 AU
					-1471 Oct 19 j 09:43	0° <del>11</del>	
conjunction	-1479 Sep 14 j 14:26	8° <del>11</del> 32'16	16°40'59	retrograde	-1470 Jan 17 j 01:12	2° <del>11</del> 06'46	
minimum elong	-1479 Sep 14 j 14:28	8° <del>11</del> 32'16	16°40'59	opposition	-1470 Apr 04 j 07:50	0° <del>11</del> 43'23	16°03'23
retrograde	-1479 Dec 27 j 00:09	11° <del>11</del> 12'27		min. Earth dist.	-1470 Apr 04 j 21:47	0° <del>11</del> 42'24	28.65983 AU
opposition	-1478 Mar 13 j 17:43	9° <del>11</del> 49'13	17°47'10		-1470 May 01 j 09:25	30° <del>11</del>	
min. Earth dist.	-1478 Mar 15 j 09:24	9° <del>11</del> 46'25	28.89943 AU	direct	-1470 Jun 23 j 04:17	29° <del>11</del> 17'41	
direct	-1478 Jun 01 j 16:30	8° <del>11</del> 22'49			-1470 Aug 12 j 12:32	0° <del>11</del>	
max. Earth dist.	-1478 Sep 15 j 18:21	11° <del>11</del> 04'03	30.77295 AU				
				conjunction	-1470 Oct 08 j 02:25	2° <del>11</del> 01'52	14°51'03
conjunction	-1478 Sep 17 j 10:23	11° <del>11</del> 08'07	16°36'29	minimum elong	-1470 Oct 08 j 02:45	2° <del>11</del> 01'54	14°51'04
minimum elong	-1478 Sep 17 j 10:25	11° <del>11</del> 08'07	16°36'29	max. Earth dist.	-1470 Oct 07 j 14:55	2° <del>11</del> 00'42	30.59684 AU
retrograde	-1478 Dec 29 j 21:33	13° <del>11</del> 48'44		retrograde	-1469 Jan 19 j 21:22	4° <del>11</del> 42'27	
opposition	-1477 Mar 16 j 15:56	12° <del>11</del> 25'21	17°41'31	opposition	-1469 Apr 07 j 06:32	3° <del>11</del> 19'09	15°41'32
min. Earth dist.	-1477 Mar 18 j 04:25	12° <del>11</del> 22'47	28.82850 AU	min. Earth dist.	-1469 Apr 07 j 16:34	3° <del>11</del> 18'27	28.67927 AU
direct	-1477 Jun 04 j 12:48	10° <del>11</del> 58'53		direct	-1469 Jun 26 j 04:39	1° <del>11</del> 53'39	
max. Earth dist.	-1477 Sep 18 j 19:12	13° <del>11</del> 40'50	30.70893 AU				
				conjunction	-1469 Oct 10 j 21:36	4° <del>11</del> 37'10	14°29'49
conjunction	-1477 Sep 20 j 06:36	13° <del>11</del> 44'26	16°30'01	minimum elong	-1469 Oct 10 j 21:57	4° <del>11</del> 37'12	14°29'48
minimum elong	-1477 Sep 20 j 06:43	13° <del>11</del> 44'26	16°30'01	max. Earth dist.	-1469 Oct 10 j 12:50	4° <del>11</del> 36'16	30.62473 AU
retrograde	-1476 Jan 01 j 17:12	16° <del>11</del> 25'23		retrograde	-1468 Jan 22 j 16:25	7° <del>11</del> 17'16	
opposition	-1476 Mar 18 j 14:33	15° <del>11</del> 01'54	17°33'44	opposition	-1468 Apr 09 j 05:02	5° <del>11</del> 54'04	15°17'57
min. Earth dist.	-1476 Mar 20 j 00:00	14° <del>11</del> 59'32	28.76924 AU	min. Earth dist.	-1468 Apr 09 j 12:25	5° <del>11</del> 53'33	28.70890 AU
direct	-1476 Jun 06 j 11:54	13° <del>11</del> 35'25		direct	-1468 Jun 28 j 02:01	4° <del>11</del> 28'46	
max. Earth dist.	-1476 Sep 20 j 17:45	16° <del>11</del> 17'45	30.65728 AU				
				conjunction	-1468 Oct 12 j 16:21	7° <del>11</del> 11'30	14°06'59
conjunction	-1476 Sep 22 j 02:38	16° <del>11</del> 21'06	16°21'35	minimum elong	-1468 Oct 12 j 16:43	7° <del>11</del> 11'33	14°07'00
minimum elong	-1476 Sep 22 j 02:45	16° <del>11</del> 21'07	16°21'36	max. Earth dist.	-1468 Oct 12 j 11:36	7° <del>11</del> 11'02	30.66297 AU
retrograde	-1475 Jan 03 j 15:19	19° <del>11</del> 02'18		retrograde	-1467 Jan 24 j 10:44	9° <del>11</del> 51'02	
opposition	-1475 Mar 21 j 13:10	17° <del>11</del> 38'45	17°23'49	opposition	-1467 Apr 12 j 03:04	8° <del>11</del> 27'56	14°52'42
min. Earth dist.	-1475 Mar 22 j 18:35	17° <del>11</del> 36'41	28.72215 AU	min. Earth dist.	-1467 Apr 12 j 07:03	8° <del>11</del> 27'39	28.74851 AU
direct	-1475 Jun 09 j 09:56	16° <del>11</del> 12'19		direct	-1467 Jul 01 j 01:32	7° <del>11</del> 02'50	
conjunction	-1475 Sep 24 j 22:57	18° <del>11</del> 58'02	16°11'11	conjunction	-1467 Oct 15 j 10:31	9° <del>11</del> 44'42	13°42'40
minimum elong	-1475 Sep 24 j 23:08	18° <del>11</del> 58'03	16°11'11	minimum elong	-1467 Oct 15 j 10:54	9° <del>11</del> 44'45	13°42'38
max. Earth dist.	-1475 Sep 23 j 18:33	18° <del>11</del> 55'09	30.61802 AU	max. Earth dist.	-1467 Oct 15 j 08:10	9° <del>11</del> 44'28	30.71144 AU
retrograde	-1474 Jan 06 j 11:24	21° <del>11</del> 39'24		retrograde	-1466 Jan 27 j 05:19	12° <del>11</del> 23'35	
opposition	-1474 Mar 24 j 11:59	20° <del>11</del> 15'50	17°11'47	opposition	-1466 Apr 15 j 00:38	11° <del>11</del> 00'34	14°25'51
min. Earth dist.	-1474 Mar 25 j 14:55	20° <del>11</del> 13'56	28.68701 AU	min. Earth dist.	-1466 Apr 15 j 01:13	11° <del>11</del> 00'32	28.79857 AU
direct	-1474 Jun 12 j 07:34	18° <del>11</del> 49'29		direct	-1466 Jul 03 j 22:19	9° <del>11</del> 35'42	
conjunction	-1474 Sep 27 j 19:05	21° <del>11</del> 35'08	15°58'51	conjunction	-1466 Oct 18 j 04:17	12° <del>11</del> 16'37	13°16'54
minimum elong	-1474 Sep 27 j 19:18	21° <del>11</del> 35'09	15°58'51	minimum elong	-1466 Oct 18 j 04:40	12° <del>11</del> 16'39	13°16'54
max. Earth dist.	-1474 Sep 26 j 17:33	21° <del>11</del> 32'32	30.59108 AU	max. Earth dist.	-1466 Oct 18 j 06:24	12° <del>11</del> 16'49	30.77064 AU
retrograde	-1473 Jan 09 j 10:16	24° <del>11</del> 16'33		retrograde	-1465 Jan 29 j 21:01	14° <del>11</del> 54'44	
opposition	-1473 Mar 27 j 10:55	22° <del>11</del> 53'00	16°57'40	opposition	-1465 Apr 17 j 21:54	13° <del>11</del> 31'52	13°57'30
min. Earth dist.	-1473 Mar 28 j 09:35	22° <del>11</del> 51'25	28.66369 AU	min. Earth dist.	-1465 Apr 17 j 19:23	13° <del>11</del> 32'02	28.85938 AU
direct	-1473 Jun 15 j 07:43	21° <del>11</del> 26'47		direct	-1465 Jul 06 j 20:48	12° <del>11</del> 07'15	
conjunction	-1473 Sep 30 j 15:09	24° <del>11</del> 12'15	15°44'36	conjunction	-1465 Oct 20 j 21:09	14° <del>11</del> 47'07	12°49'47
minimum elong	-1473 Sep 30 j 15:24	24° <del>11</del> 12'16	15°44'36	minimum elong	-1465 Oct 20 j 21:33	14° <del>11</del> 47'09	12°49'45
max. Earth dist.	-1473 Sep 29 j 17:45	24° <del>11</del> 10'04	30.57587 AU	max. Earth dist.	-1465 Oct 21 j 01:47	14° <del>11</del> 47'35	30.84098 AU
retrograde	-1472 Jan 12 j 06:31	26° <del>11</del> 53'37		retrograde	-1464 Feb 01 j 14:39	17° <del>11</del> 24'27	
opposition	-1472 Mar 29 j 10:05	25° <del>11</del> 30'07	16°41'31	opposition	-1464 Apr 19 j 18:32	16° <del>11</del> 01'43	13°27'43
min. Earth dist.	-1472 Mar 30 j 06:30	25° <del>11</del> 28'41	28.65166 AU	min. Earth dist.	-1464 Apr 19 j 11:47	16° <del>11</del> 02'11	28.93160 AU
direct	-1472 Jun 17 j 06:11	24° <del>11</del> 04'03		direct	-1464 Jul 08 j 16:39	14° <del>11</del> 37'23	
conjunction	-1472 Oct 02 j 11:06	26° <del>11</del> 49'12	15°28'31	conjunction	-1464 Oct 22 j 13:44	17° <del>11</del> 16'11	12°21'23
minimum elong	-1472 Oct 02 j 11:22	26° <del>11</del> 49'13	15°28'31	minimum elong	-1464 Oct 22 j 14:09	17° <del>11</del> 16'13	12°21'23
max. Earth dist.	-1472 Oct 01 j 16:50	26° <del>11</del> 47'20	30.57213 AU	max. Earth dist.	-1464 Oct 22 j 22:58	17° <del>11</del> 17'06	30.92279 AU
retrograde	-1471 Jan 14 j 04:14	29° <del>11</del> 30'25		retrograde	-1463 Feb 03 j 05:47	19° <del>11</del> 52'40	
opposition	-1471 Apr 01 j 08:52	28° <del>11</del> 06'58	16°23'24	opposition	-1463 Apr 22 j 14:32	18° <del>11</del> 30'08	12°56'37
min. Earth dist.	-1471 Apr 02 j 01:05	28° <del>11</del> 05'50	28.65051 AU	min. Earth dist.	-1463 Apr 22 j 05:10	18° <del>11</del> 30'46	29.01525 AU
direct	-1471 Jun 20 j 05:49	26° <del>11</del> 41'05		direct	-1463 Jul 11 j 12:15	17° <del>11</del> 06'08	
conjunction	-1471 Oct 05 j 06:57	29° <del>11</del> 25'48	15°10'39	conjunction	-1463 Oct 25 j 05:34	19° <del>11</del> 43'47	11°51'49



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 28

Attention, astronomical year style is used: The year -1463 in astronomical counting style is the year 1464 BCE in historical counting style.

minimum elong	-1463 Oct 25 j 05:58	19° <del>4</del> 43'50	11°51'47	minimum elong	-1455 Nov 12 j 13:34	8° <del>8</del> 29'00	7°25'35
max. Earth dist.	-1463 Oct 25 j 17:22	19° <del>4</del> 44'57	31.01618 AU	max. Earth dist.	-1455 Nov 14 j 00:46	8° <del>8</del> 32'18	32.10825 AU
retrograde	-1462 Feb 05 j 22:50	22° <del>4</del> 19'24		retrograde	-1454 Feb 24 j 06:42	10° <del>8</del> 56'07	
opposition	-1462 Apr 25 j 09:58	20° <del>4</del> 57'05	12°24'17	min. Earth dist.	-1454 May 13 j 10:36	9° <del>8</del> 38'27	30.20841 AU
min. Earth dist.	-1462 Apr 24 j 20:02	20° <del>4</del> 58'02	29.11035 AU	opposition	-1454 May 14 j 22:21	9° <del>8</del> 36'07	7°36'12
direct	-1462 Jul 14 j 08:24	19° <del>4</del> 33'27		direct	-1454 Aug 03 j 03:07	8° <del>8</del> 15'41	
conjunction	-1462 Oct 27 j 20:47	22° <del>4</del> 09'57	11°21'10	conjunction	-1454 Nov 14 j 22:52	10° <del>8</del> 41'39	6°50'09
minimum elong	-1462 Oct 27 j 21:11	22° <del>4</del> 09'59	11°21'10	minimum elong	-1454 Nov 14 j 23:09	10° <del>8</del> 41'40	6°50'09
max. Earth dist.	-1462 Oct 28 j 12:50	22° <del>4</del> 11'31	31.12069 AU	max. Earth dist.	-1454 Nov 16 j 11:52	10° <del>8</del> 45'05	32.27901 AU
retrograde	-1461 Feb 08 j 13:55	24° <del>4</del> 44'39		retrograde	-1453 Feb 26 j 15:49	13° <del>8</del> 07'36	
opposition	-1461 Apr 28 j 05:01	23° <del>4</del> 22'35	11°50'52	min. Earth dist.	-1453 May 15 j 20:16	11° <del>8</del> 50'24	30.38004 AU
min. Earth dist.	-1461 Apr 27 j 12:42	23° <del>4</del> 23'42	29.21639 AU	opposition	-1453 May 17 j 11:33	11° <del>8</del> 47'51	6°58'09
direct	-1461 Jul 17 j 03:09	21° <del>4</del> 59'20		direct	-1453 Aug 05 j 16:13	10° <del>8</del> 27'47	
conjunction	-1461 Oct 30 j 11:22	24° <del>4</del> 34'39	10°49'33	conjunction	-1453 Nov 17 j 07:53	12° <del>8</del> 52'19	6°14'31
minimum elong	-1461 Oct 30 j 11:45	24° <del>4</del> 34'41	10°49'32	minimum elong	-1453 Nov 17 j 08:08	12° <del>8</del> 52'21	6°14'30
max. Earth dist.	-1461 Oct 31 j 06:09	24° <del>4</del> 36'29	31.23591 AU	max. Earth dist.	-1453 Nov 19 j 00:24	12° <del>8</del> 56'03	32.45684 AU
retrograde	-1460 Feb 11 j 05:42	27° <del>4</del> 08'22			-1452 Jan 27 j 07:33	15° <del>8</del>	
opposition	-1460 Apr 29 j 23:09	25° <del>4</del> 46'37	11°16'28	retrograde	-1452 Feb 28 j 23:14	15° <del>8</del> 17'04	
min. Earth dist.	-1460 Apr 29 j 02:36	25° <del>4</del> 48'00	29.33277 AU		-1452 Apr 02 j 18:47	15° <del>8</del> <del>8</del>	
direct	-1460 Jul 18 j 21:54	24° <del>4</del> 23'46		min. Earth dist.	-1452 May 17 j 07:04	14° <del>8</del> 00'13	30.55918 AU
conjunction	-1460 Nov 01 j 01:17	26° <del>4</del> 57'50	10°17'04	opposition	-1452 May 18 j 23:56	13° <del>8</del> 57'35	6°19'56
minimum elong	-1460 Nov 01 j 01:41	26° <del>4</del> 57'53	10°17'04	direct	-1452 Aug 07 j 04:08	12° <del>8</del> 37'54	
max. Earth dist.	-1460 Nov 01 j 23:21	26° <del>4</del> 59'58	31.36087 AU	conjunction	-1452 Nov 18 j 16:03	15° <del>8</del> 01'01	5°38'45
retrograde	-1459 Feb 12 j 20:28	29° <del>4</del> 30'34		minimum elong	-1452 Nov 18 j 16:17	15° <del>8</del> 01'02	5°38'44
opposition	-1459 May 02 j 16:51	28° <del>4</del> 09'06	10°41'13		-1452 Nov 18 j 04:59	15° <del>8</del>	
min. Earth dist.	-1459 May 01 j 18:09	28° <del>4</del> 10'37	29.45873 AU	max. Earth dist.	-1452 Nov 20 j 10:25	15° <del>8</del> 04'53	32.64220 AU
direct	-1459 Jul 21 j 15:47	26° <del>4</del> 46'41		retrograde	-1451 Mar 02 j 07:51	17° <del>8</del> 24'33	
conjunction	-1459 Nov 03 j 14:38	29° <del>4</del> 19'29	9°43'52	min. Earth dist.	-1451 May 19 j 14:52	16° <del>8</del> 08'13	30.74603 AU
minimum elong	-1459 Nov 03 j 14:59	29° <del>4</del> 19'31	9°43'50	opposition	-1451 May 21 j 11:26	16° <del>8</del> 05'22	5°41'40
max. Earth dist.	-1459 Nov 04 j 15:40	29° <del>4</del> 21'53	31.49496 AU		-1451 Jul 10 j 04:19	15° <del>8</del> <del>8</del>	
	-1459 Nov 21 j 08:52	0° <del>8</del>		direct	-1451 Aug 09 j 16:06	14° <del>8</del> 46'03	
retrograde	-1458 Feb 15 j 11:08	1° <del>8</del> 51'10			-1451 Sep 08 j 10:38	15° <del>8</del>	
min. Earth dist.	-1458 May 04 j 07:37	0° <del>8</del> 31'45	29.59338 AU	conjunction	-1451 Nov 20 j 23:27	17° <del>8</del> 07'47	5°02'56
opposition	-1458 May 05 j 09:43	0° <del>8</del> 30'00	10°05'15	minimum elong	-1451 Nov 20 j 23:39	17° <del>8</del> 07'48	5°02'54
	-1458 May 24 j 14:24	30° <del>8</del> <del>8</del>		max. Earth dist.	-1451 Nov 22 j 20:41	17° <del>8</del> 11'52	32.83495 AU
direct	-1458 Jul 24 j 11:10	29° <del>8</del> 08'00		retrograde	-1450 Mar 04 j 15:47	19° <del>8</del> 30'08	
	-1458 Sep 19 j 17:12	0° <del>8</del>		min. Earth dist.	-1450 May 21 j 23:56	18° <del>8</del> 14'12	30.94062 AU
conjunction	-1458 Nov 06 j 03:17	1° <del>8</del> 39'30	9°10'01	opposition	-1450 May 23 j 22:19	18° <del>8</del> 11'15	5°03'24
minimum elong	-1458 Nov 06 j 03:39	1° <del>8</del> 39'32	9°10'00	direct	-1450 Aug 12 j 03:11	16° <del>8</del> 52'22	
max. Earth dist.	-1458 Nov 07 j 06:39	1° <del>8</del> 42'07	31.63725 AU	conjunction	-1450 Nov 23 j 06:16	19° <del>8</del> 12'42	4°27'08
retrograde	-1457 Feb 17 j 23:50	4° <del>8</del> 10'07		minimum elong	-1450 Nov 23 j 06:27	19° <del>8</del> 12'43	4°27'07
min. Earth dist.	-1457 May 06 j 21:30	2° <del>8</del> 51'09	29.73628 AU	max. Earth dist.	-1450 Nov 25 j 05:57	19° <del>8</del> 16'59	33.03522 AU
opposition	-1457 May 08 j 02:06	2° <del>8</del> 49'15	9°28'39	retrograde	-1449 Mar 06 j 23:28	21° <del>8</del> 33'53	
direct	-1457 Jul 27 j 02:52	1° <del>8</del> 27'40		min. Earth dist.	-1449 May 24 j 07:00	20° <del>8</del> 18'28	31.14256 AU
conjunction	-1457 Nov 08 j 15:18	3° <del>8</del> 57'49	8°35'37	opposition	-1449 May 26 j 08:21	20° <del>8</del> 15'20	4°25'13
minimum elong	-1457 Nov 08 j 15:38	3° <del>8</del> 57'51	8°35'36	direct	-1449 Aug 14 j 14:32	18° <del>8</del> 56'52	
max. Earth dist.	-1457 Nov 09 j 21:59	4° <del>8</del> 00'44	31.78729 AU	conjunction	-1449 Nov 25 j 12:13	21° <del>8</del> 15'52	3°51'26
retrograde	-1456 Feb 20 j 10:33	6° <del>8</del> 27'18		minimum elong	-1449 Nov 25 j 12:22	21° <del>8</del> 15'53	3°51'24
min. Earth dist.	-1456 May 08 j 10:33	5° <del>8</del> 08'48	29.88656 AU	max. Earth dist.	-1449 Nov 27 j 13:52	21° <del>8</del> 20'17	33.24227 AU
opposition	-1456 May 09 j 17:41	5° <del>8</del> 06'44	8°51'33	retrograde	-1448 Mar 08 j 06:05	23° <del>8</del> 35'54	
direct	-1456 Jul 28 j 20:44	3° <del>8</del> 45'33		min. Earth dist.	-1448 May 25 j 14:09	22° <del>8</del> 20'56	31.35136 AU
conjunction	-1456 Nov 10 j 02:36	6° <del>8</del> 14'21	8°00'47	opposition	-1448 May 27 j 17:44	22° <del>8</del> 17'41	3°47'12
minimum elong	-1456 Nov 10 j 02:55	6° <del>8</del> 14'22	8°00'47	direct	-1448 Aug 15 j 23:18	20° <del>8</del> 59'40	
max. Earth dist.	-1456 Nov 11 j 10:43	6° <del>8</del> 17'22	31.94434 AU	conjunction	-1448 Nov 26 j 17:45	23° <del>8</del> 17'21	3°15'53
retrograde	-1455 Feb 21 j 22:23	8° <del>8</del> 42'40		minimum elong	-1448 Nov 26 j 17:53	23° <del>8</del> 17'21	3°15'53
min. Earth dist.	-1455 May 10 j 22:14	7° <del>8</del> 24'37	30.04404 AU	max. Earth dist.	-1448 Nov 28 j 22:16	23° <del>8</del> 21'59	33.45553 AU
opposition	-1455 May 12 j 08:17	7° <del>8</del> 22'23	8°14'02	retrograde	-1447 Mar 10 j 10:17	25° <del>8</del> 36'13	
direct	-1455 Jul 31 j 11:29	6° <del>8</del> 01'35		min. Earth dist.	-1447 May 27 j 20:51	24° <del>8</del> 21'43	31.56603 AU
conjunction	-1455 Nov 12 j 13:16	8° <del>8</del> 28'59	7°25'37	opposition	-1447 May 30 j 02:09	24° <del>8</del> 18'22	3°09'24
				direct	-1447 Aug 18 j 10:23	23° <del>8</del> 00'48	



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 29

Attention, astronomical year style is used: The year -1447 in astronomical counting style is the year 1448 BCE in historical counting style.

conjunction	-1447 Nov 28 j 22:29	25° $\mathbb{M}$ 17'11	2°40'34	opposition	-1439 Jun 14 j 21:43	9° $\mathbb{Z}$ 25'55	-1°-38'-30
minimum elong	-1447 Nov 28 j 22:35	25° $\mathbb{M}$ 17'11	2°40'32	direct	-1439 Sep 03 j 07:57	8° $\mathbb{Z}$ 11'30	
max. Earth dist.	-1447 Dec 01 j 03:56	25° $\mathbb{M}$ 21'52	33.67409 AU				
retrograde	-1446 Mar 12 j 16:00	27° $\mathbb{M}$ 34'55		conjunction	-1439 Dec 13 j 14:40	10° $\mathbb{Z}$ 18'02	-1°-48'-44
min. Earth dist.	-1446 May 30 j 02:10	26° $\mathbb{M}$ 20'56	31.78601 AU	minimum elong	-1439 Dec 13 j 14:36	10° $\mathbb{Z}$ 18'02	1°48'47
opposition	-1446 Jun 01 j 10:05	26° $\mathbb{M}$ 17'26	2°31'54	max. Earth dist.	-1439 Dec 16 j 08:55	10° $\mathbb{Z}$ 23'29	35.54407 AU
direct	-1446 Aug 20 j 18:23	25° $\mathbb{M}$ 00'18		retrograde	-1438 Mar 27 j 05:15	12° $\mathbb{Z}$ 27'06	
				min. Earth dist.	-1438 Jun 14 j 05:15	11° $\mathbb{Z}$ 16'11	33.66803 AU
conjunction	-1446 Dec 01 j 02:39	27° $\mathbb{M}$ 15'24	2°05'31	opposition	-1438 Jun 17 j 00:07	11° $\mathbb{Z}$ 12'11	-2°-12'-7
minimum elong	-1446 Dec 01 j 02:44	27° $\mathbb{M}$ 15'25	2°05'30	direct	-1438 Sep 05 j 12:57	9° $\mathbb{Z}$ 58'09	
max. Earth dist.	-1446 Dec 03 j 10:55	27° $\mathbb{M}$ 20'18	33.89719 AU				
retrograde	-1445 Mar 14 j 18:29	29° $\mathbb{M}$ 32'03		conjunction	-1438 Dec 15 j 13:47	12° $\mathbb{Z}$ 03'34	-2°-20'-13
min. Earth dist.	-1445 Jun 01 j 08:47	28° $\mathbb{M}$ 18'26	32.01029 AU	minimum elong	-1438 Dec 15 j 13:42	12° $\mathbb{Z}$ 03'33	2°20'15
opposition	-1445 Jun 03 j 17:25	28° $\mathbb{M}$ 14'55	1°54'45	max. Earth dist.	-1438 Dec 18 j 08:27	12° $\mathbb{Z}$ 09'00	35.79172 AU
direct	-1445 Aug 23 j 02:48	26° $\mathbb{M}$ 58'14		retrograde	-1437 Mar 29 j 04:07	14° $\mathbb{Z}$ 11'37	
				min. Earth dist.	-1437 Jun 16 j 04:30	13° $\mathbb{Z}$ 01'09	33.91809 AU
conjunction	-1445 Dec 03 j 06:15	29° $\mathbb{M}$ 12'03	1°30'47	opposition	-1437 Jun 19 j 01:50	12° $\mathbb{Z}$ 57'02	-2°-45'-7
minimum elong	-1445 Dec 03 j 06:18	29° $\mathbb{M}$ 12'03	1°30'45	direct	-1437 Sep 07 j 15:05	11° $\mathbb{Z}$ 43'23	
max. Earth dist.	-1445 Dec 05 j 15:06	29° $\mathbb{M}$ 16'57	34.12407 AU				
	-1445 Dec 26 j 22:30	0° $\mathbb{Z}$		conjunction	-1437 Dec 17 j 12:35	13° $\mathbb{Z}$ 47'42	-2°-51'-8
retrograde	-1444 Mar 15 j 22:08	1° $\mathbb{Z}$ 27'35		minimum elong	-1437 Dec 17 j 12:30	13° $\mathbb{Z}$ 47'41	2°51'11
min. Earth dist.	-1444 Jun 02 j 12:34	0° $\mathbb{Z}$ 14'27	32.23823 AU	max. Earth dist.	-1437 Dec 20 j 09:26	13° $\mathbb{Z}$ 53'16	36.04246 AU
opposition	-1444 Jun 04 j 23:45	0° $\mathbb{Z}$ 10'48	1°17'59	retrograde	-1436 Mar 30 j 02:12	15° $\mathbb{Z}$ 54'47	
	-1444 Jun 12 j 07:37	30° $\mathbb{R}$ $\mathbb{M}$		min. Earth dist.	-1436 Jun 17 j 05:23	14° $\mathbb{Z}$ 44'39	34.17122 AU
direct	-1444 Aug 24 j 08:51	28° $\mathbb{M}$ 54'31		opposition	-1436 Jun 20 j 02:54	14° $\mathbb{Z}$ 40'32	-3°-17'-28
	-1444 Oct 31 j 02:53	0° $\mathbb{Z}$		direct	-1436 Sep 08 j 15:57	13° $\mathbb{Z}$ 27'16	
conjunction	-1444 Dec 04 j 09:18	1° $\mathbb{Z}$ 07'06	0°56'25	conjunction	-1436 Dec 18 j 10:52	15° $\mathbb{Z}$ 30'31	-3°-21'-29
minimum elong	-1444 Dec 04 j 09:20	1° $\mathbb{Z}$ 07'06	0°56'24	minimum elong	-1436 Dec 18 j 10:45	15° $\mathbb{Z}$ 30'31	3°21'30
max. Earth dist.	-1444 Dec 06 j 20:15	1° $\mathbb{Z}$ 12'09	34.35393 AU	max. Earth dist.	-1436 Dec 21 j 08:28	15° $\mathbb{Z}$ 36'07	36.29591 AU
retrograde	-1443 Mar 18 j 01:02	3° $\mathbb{Z}$ 21'32		retrograde	-1435 Apr 01 j 01:05	17° $\mathbb{Z}$ 36'40	
min. Earth dist.	-1443 Jun 04 j 18:01	2° $\mathbb{Z}$ 08'45	32.46914 AU	min. Earth dist.	-1435 Jun 19 j 03:53	16° $\mathbb{Z}$ 26'57	34.42672 AU
opposition	-1443 Jun 07 j 05:39	2° $\mathbb{Z}$ 05'06	0°41'40	opposition	-1435 Jun 22 j 03:22	16° $\mathbb{Z}$ 22'45	-3°-49'-10
direct	-1443 Aug 26 j 13:35	0° $\mathbb{Z}$ 49'13		direct	-1435 Sep 10 j 16:11	15° $\mathbb{Z}$ 09'52	
conjunction	-1443 Dec 06 j 11:37	3° $\mathbb{Z}$ 00'32	0°22'27	conjunction	-1435 Dec 20 j 08:27	17° $\mathbb{Z}$ 12'06	-3°-51'-13
minimum elong	-1443 Dec 06 j 11:38	3° $\mathbb{Z}$ 00'32	0°22'26	minimum elong	-1435 Dec 20 j 08:19	17° $\mathbb{Z}$ 12'05	3°51'16
max. Earth dist.	-1443 Dec 08 j 23:31	3° $\mathbb{Z}$ 05'37	34.58645 AU	max. Earth dist.	-1435 Dec 23 j 07:06	17° $\mathbb{Z}$ 17'44	36.55115 AU
retrograde	-1442 Mar 20 j 03:37	5° $\mathbb{Z}$ 13'52		retrograde	-1434 Apr 03 j 01:35	19° $\mathbb{Z}$ 17'19	
min. Earth dist.	-1442 Jun 06 j 20:54	4° $\mathbb{Z}$ 01'31	32.70266 AU	min. Earth dist.	-1434 Jun 21 j 03:28	18° $\mathbb{Z}$ 07'56	34.68401 AU
opposition	-1442 Jun 09 j 10:43	3° $\mathbb{Z}$ 57'45	0°05'49	opposition	-1434 Jun 24 j 03:31	18° $\mathbb{Z}$ 03'44	-4°-20'-13
desc. node	-1442 Aug 08 j 13:30	2° $\mathbb{Z}$ 48'13		direct	-1434 Sep 12 j 13:57	16° $\mathbb{Z}$ 51'15	
direct	-1442 Aug 28 j 18:58	2° $\mathbb{Z}$ 42'15					
conjunction	-1442 Dec 08 j 13:18	4° $\mathbb{Z}$ 52'21	0°-11'-7	conjunction	-1434 Dec 22 j 05:52	18° $\mathbb{Z}$ 52'28	-4°-20'-21
minimum elong	-1442 Dec 08 j 13:17	4° $\mathbb{Z}$ 52'21	0°11'09	minimum elong	-1434 Dec 22 j 05:44	18° $\mathbb{Z}$ 52'27	4°20'22
behind sun begin	-1442 Dec 08 j 08:30	4° $\mathbb{Z}$ 51'58		max. Earth dist.	-1434 Dec 25 j 05:52	18° $\mathbb{Z}$ 58'09	36.80771 AU
behind sun end	-1442 Dec 08 j 18:05	4° $\mathbb{Z}$ 52'44		retrograde	-1433 Apr 04 j 22:56	20° $\mathbb{Z}$ 56'46	
max. Earth dist.	-1442 Dec 11 j 02:25	4° $\mathbb{Z}$ 57'29	34.82138 AU	min. Earth dist.	-1433 Jun 23 j 02:20	19° $\mathbb{Z}$ 47'44	34.94216 AU
retrograde	-1441 Mar 22 j 06:33	7° $\mathbb{Z}$ 04'35		opposition	-1433 Jun 26 j 02:57	19° $\mathbb{Z}$ 43'31	-4°-50'-35
min. Earth dist.	-1441 Jun 09 j 00:25	5° $\mathbb{Z}$ 52'34	32.93911 AU	direct	-1433 Sep 14 j 13:53	18° $\mathbb{Z}$ 31'24	
opposition	-1441 Jun 11 j 15:12	5° $\mathbb{Z}$ 48'46	0°-29'-30				
direct	-1441 Aug 30 j 23:31	4° $\mathbb{Z}$ 33'38		conjunction	-1433 Dec 24 j 02:42	20° $\mathbb{Z}$ 31'37	-4°-48'-52
				minimum elong	-1433 Dec 24 j 02:32	20° $\mathbb{Z}$ 31'37	4°48'55
				max. Earth dist.	-1433 Dec 27 j 02:29	20° $\mathbb{Z}$ 37'16	37.06460 AU
conjunction	-1441 Dec 10 j 14:23	6° $\mathbb{Z}$ 42'30	0°-44'-9	retrograde	-1432 Apr 05 j 20:44	22° $\mathbb{Z}$ 35'01	
minimum elong	-1441 Dec 10 j 14:21	6° $\mathbb{Z}$ 42'30	0°44'12	min. Earth dist.	-1432 Jun 24 j 00:15	21° $\mathbb{Z}$ 26'21	35.20054 AU
max. Earth dist.	-1441 Dec 13 j 05:28	6° $\mathbb{Z}$ 47'46	35.05915 AU	opposition	-1432 Jun 27 j 01:57	21° $\mathbb{Z}$ 22'06	-5°-20'-17
retrograde	-1440 Mar 23 j 07:30	8° $\mathbb{Z}$ 53'39		direct	-1432 Sep 15 j 12:52	20° $\mathbb{Z}$ 10'20	
min. Earth dist.	-1440 Jun 10 j 02:42	7° $\mathbb{Z}$ 42'00	33.17854 AU				
opposition	-1440 Jun 12 j 18:50	7° $\mathbb{Z}$ 38'08	-1°-4'-17	conjunction	-1432 Dec 24 j 23:17	22° $\mathbb{Z}$ 09'35	-5°-16'-46
direct	-1440 Sep 01 j 05:21	6° $\mathbb{Z}$ 23'21		minimum elong	-1432 Dec 24 j 23:08	22° $\mathbb{Z}$ 09'34	5°16'48
				max. Earth dist.	-1432 Dec 28 j 00:36	22° $\mathbb{Z}$ 15'18	37.32114 AU
				retrograde	-1431 Apr 07 j 14:53	24° $\mathbb{Z}$ 12'05	
conjunction	-1440 Dec 11 j 14:43	8° $\mathbb{Z}$ 31'03	-1°-16'-42	min. Earth dist.	-1431 Jun 25 j 23:08	23° $\mathbb{Z}$ 03'41	35.45827 AU
minimum elong	-1440 Dec 11 j 14:41	8° $\mathbb{Z}$ 31'03	1°16'44	opposition	-1431 Jun 29 j 00:21	22° $\mathbb{Z}$ 59'28	-5°-49'-18
max. Earth dist.	-1440 Dec 14 j 06:28	8° $\mathbb{Z}$ 36'20	35.29989 AU	direct	-1431 Sep 17 j 14:06	21° $\mathbb{Z}$ 48'02	
retrograde	-1439 Mar 25 j 08:33	10° $\mathbb{Z}$ 41'08					
min. Earth dist.	-1439 Jun 12 j 03:32	9° $\mathbb{Z}$ 29'53	33.42150 AU				



## Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 30

Attention, astronomical year style is used: The year -1431 in astronomical counting style is the year 1432 BCE in historical counting style.

conjunction	-1431 Dec 26 j 19:20	23° $\mathring{A}$ 46'19	-5°-44'-3	direct	-1423 Sep 30 j 10:05	4° $\mathring{B}$ 06'23	
minimum elong	-1431 Dec 26 j 19:10	23° $\mathring{A}$ 46'19	5°44'06				
max. Earth dist.	-1431 Dec 29 j 20:00	23° $\mathring{A}$ 51'57	37.57688 AU	conjunction	-1422 Jan 07 j 19:24	5° $\mathring{B}$ 57'47	-8°-59'-38
retrograde	-1430 Apr 09 j 10:47	25° $\mathring{A}$ 47'56		minimum elong	-1422 Jan 07 j 19:11	5° $\mathring{B}$ 57'46	8°59'40
min. Earth dist.	-1430 Jun 27 j 19:37	24° $\mathring{A}$ 39'52	35.71518 AU	max. Earth dist.	-1422 Jan 11 j 00:44	6° $\mathring{B}$ 03'28	39.61028 AU
opposition	-1430 Jun 30 j 22:18	24° $\mathring{A}$ 35'36	-6°-17'-39	retrograde	-1422 Apr 21 j 09:51	7° $\mathring{B}$ 53'03	
direct	-1430 Sep 19 j 12:37	23° $\mathring{A}$ 24'28		min. Earth dist.	-1422 Jul 10 j 06:13	6° $\mathring{B}$ 47'10	37.76375 AU
				opposition	-1422 Jul 13 j 11:37	6° $\mathring{B}$ 42'53	-9°-39'-44
conjunction	-1430 Dec 28 j 14:51	25° $\mathring{A}$ 21'48	-6°-10'-43	direct	-1422 Oct 02 j 03:25	5° $\mathring{B}$ 34'11	
minimum elong	-1430 Dec 28 j 14:40	25° $\mathring{A}$ 21'48	6°10'45				
max. Earth dist.	-1430 Dec 31 j 16:37	25° $\mathring{A}$ 27'29	37.83157 AU	conjunction	-1421 Jan 09 j 11:46	7° $\mathring{B}$ 24'50	-9°-21'-13
retrograde	-1429 Apr 11 j 05:16	27° $\mathring{A}$ 22'33		minimum elong	-1421 Jan 09 j 11:34	7° $\mathring{B}$ 24'49	9°21'16
min. Earth dist.	-1429 Jun 29 j 17:49	26° $\mathring{A}$ 14'41	35.97126 AU	max. Earth dist.	-1421 Jan 12 j 17:33	7° $\mathring{B}$ 30'31	39.86357 AU
opposition	-1429 Jul 02 j 19:50	26° $\mathring{A}$ 10'28	-6°-45'-20	retrograde	-1421 Apr 23 j 03:56	9° $\mathring{B}$ 19'25	
direct	-1429 Sep 21 j 10:40	24° $\mathring{A}$ 59'38		min. Earth dist.	-1421 Jul 11 j 23:35	8° $\mathring{B}$ 13'49	38.01832 AU
				opposition	-1421 Jul 15 j 05:16	8° $\mathring{B}$ 09'32	-10°-1'-56
conjunction	-1429 Dec 30 j 10:02	26° $\mathring{A}$ 56'02	-6°-36'-46	direct	-1421 Oct 03 j 19:41	7° $\mathring{B}$ 01'08	
minimum elong	-1429 Dec 30 j 09:51	26° $\mathring{A}$ 56'01	6°36'49				
max. Earth dist.	-1428 Jan 02 j 12:03	27° $\mathring{A}$ 01'41	38.08557 AU	conjunction	-1420 Jan 11 j 03:49	8° $\mathring{B}$ 51'05	-9°-42'-13
retrograde	-1428 Apr 12 j 00:26	28° $\mathring{A}$ 55'54		minimum elong	-1420 Jan 11 j 03:36	8° $\mathring{B}$ 51'04	9°42'15
min. Earth dist.	-1428 Jun 30 j 13:24	27° $\mathring{A}$ 48'20	36.22677 AU	max. Earth dist.	-1420 Jan 14 j 08:54	8° $\mathring{B}$ 56'40	40.11506 AU
opposition	-1428 Jul 03 j 16:28	27° $\mathring{A}$ 44'04	-7°-12'-19	retrograde	-1420 Apr 23 j 22:13	10° $\mathring{B}$ 44'59	
direct	-1428 Sep 22 j 07:28	26° $\mathring{A}$ 33'31		min. Earth dist.	-1420 Jul 12 j 16:46	9° $\mathring{B}$ 39'38	38.27099 AU
				opposition	-1420 Jul 15 j 22:30	9° $\mathring{B}$ 35'24	-10°-23'-30
conjunction	-1428 Dec 31 j 04:35	28° $\mathring{A}$ 29'01	-7°-2'-10	direct	-1420 Oct 04 j 10:40	8° $\mathring{B}$ 27'17	
minimum elong	-1428 Dec 31 j 04:24	28° $\mathring{A}$ 29'00	7°02'13				
max. Earth dist.	-1427 Jan 03 j 06:54	28° $\mathring{A}$ 34'39	38.33910 AU	conjunction	-1419 Jan 11 j 19:43	10° $\mathring{B}$ 16'32	-10°-2'-37
	-1427 Feb 26 j 06:00	0° $\mathring{B}$		minimum elong	-1419 Jan 11 j 19:30	10° $\mathring{B}$ 16'31	10°02'40
retrograde	-1427 Apr 13 j 21:12	0° $\mathring{B}$ 28'02		max. Earth dist.	-1419 Jan 15 j 01:36	10° $\mathring{B}$ 22'08	40.36423 AU
	-1427 Jun 01 j 00:24	30° $\mathring{R}$ $\mathring{A}$		retrograde	-1419 Apr 25 j 12:32	12° $\mathring{B}$ 09'45	
min. Earth dist.	-1427 Jul 02 j 09:25	29° $\mathring{A}$ 20'43	36.48236 AU	min. Earth dist.	-1419 Jul 14 j 10:43	11° $\mathring{B}$ 04'36	38.52089 AU
opposition	-1427 Jul 05 j 12:52	29° $\mathring{A}$ 16'28	-7°-38'-37	opposition	-1419 Jul 17 j 15:28	11° $\mathring{B}$ 00'25	-10°-44'-26
direct	-1427 Sep 24 j 01:35	28° $\mathring{A}$ 06'12		direct	-1419 Oct 06 j 05:33	9° $\mathring{B}$ 52'35	
conjunction	-1426 Jan 01 j 22:43	0° $\mathring{B}$ 00'48	-7°-26'-57	conjunction	-1418 Jan 13 j 11:03	11° $\mathring{B}$ 41'08	-10°-22'-26
minimum elong	-1426 Jan 01 j 22:31	0° $\mathring{B}$ 00'47	7°26'59	minimum elong	-1418 Jan 13 j 10:50	11° $\mathring{B}$ 41'07	10°22'28
	-1426 Jan 01 j 12:02	0° $\mathring{B}$		max. Earth dist.	-1418 Jan 16 j 15:35	11° $\mathring{B}$ 46'37	40.61052 AU
max. Earth dist.	-1426 Jan 05 j 02:25	0° $\mathring{B}$ 06'30	38.59286 AU	retrograde	-1418 Apr 27 j 03:04	13° $\mathring{B}$ 33'40	
retrograde	-1426 Apr 15 j 14:09	1° $\mathring{B}$ 59'01		min. Earth dist.	-1418 Jul 16 j 02:41	12° $\mathring{B}$ 28'47	38.76785 AU
min. Earth dist.	-1426 Jul 04 j 04:58	0° $\mathring{B}$ 51'58	36.73820 AU	opposition	-1418 Jul 19 j 08:06	12° $\mathring{B}$ 24'34	-11°-4'-44
opposition	-1426 Jul 07 j 08:44	0° $\mathring{B}$ 47'42	-8°-4'-13	direct	-1418 Oct 07 j 23:28	11° $\mathring{B}$ 16'59	
	-1426 Aug 15 j 02:50	30° $\mathring{R}$ $\mathring{A}$					
direct	-1426 Sep 25 j 22:57	29° $\mathring{A}$ 37'44		conjunction	-1417 Jan 15 j 02:14	13° $\mathring{B}$ 04'50	-10°-41'-40
	-1426 Nov 05 j 12:53	0° $\mathring{B}$		minimum elong	-1417 Jan 15 j 02:02	13° $\mathring{B}$ 04'49	10°41'43
				max. Earth dist.	-1417 Jan 18 j 07:22	13° $\mathring{B}$ 10'19	40.85372 AU
conjunction	-1425 Jan 03 j 16:25	1° $\mathring{B}$ 31'30	-7°-51'-4	retrograde	-1417 Apr 28 j 16:26	14° $\mathring{B}$ 56'41	
minimum elong	-1425 Jan 03 j 16:13	1° $\mathring{B}$ 31'29	7°51'06	min. Earth dist.	-1417 Jul 17 j 20:19	13° $\mathring{B}$ 51'56	39.01179 AU
max. Earth dist.	-1425 Jan 06 j 19:45	1° $\mathring{B}$ 37'08	38.84699 AU	opposition	-1417 Jul 21 j 00:20	13° $\mathring{B}$ 47'49	-11°-24'-27
retrograde	-1425 Apr 17 j 08:06	3° $\mathring{B}$ 28'55		direct	-1417 Oct 09 j 17:17	12° $\mathring{B}$ 40'27	
min. Earth dist.	-1425 Jul 05 j 23:00	2° $\mathring{B}$ 22'12	36.99464 AU				
opposition	-1425 Jul 09 j 04:04	2° $\mathring{B}$ 17'53	-8°-29'-7	conjunction	-1416 Jan 16 j 17:04	14° $\mathring{B}$ 27'35	-11°00'-21
direct	-1425 Sep 27 j 18:31	1° $\mathring{B}$ 08'13		minimum elong	-1416 Jan 16 j 16:51	14° $\mathring{B}$ 27'34	11°00'22
				max. Earth dist.	-1416 Jan 19 j 21:40	14° $\mathring{B}$ 33'01	41.09417 AU
conjunction	-1424 Jan 05 j 09:50	3° $\mathring{B}$ 01'10	-8°-14'-33	retrograde	-1416 Apr 29 j 06:07	16° $\mathring{B}$ 18'47	
minimum elong	-1424 Jan 05 j 09:37	3° $\mathring{B}$ 01'10	8°14'36	min. Earth dist.	-1416 Jul 18 j 11:23	15° $\mathring{B}$ 14'15	39.25307 AU
max. Earth dist.	-1424 Jan 08 j 14:48	3° $\mathring{B}$ 06'54	39.10152 AU	opposition	-1416 Jul 21 j 16:01	15° $\mathring{B}$ 10'06	-11°-43'-32
retrograde	-1424 Apr 17 j 23:43	4° $\mathring{B}$ 57'51		direct	-1416 Oct 10 j 10:15	14° $\mathring{B}$ 02'57	
min. Earth dist.	-1424 Jul 06 j 18:29	3° $\mathring{B}$ 51'22	37.25128 AU				
opposition	-1424 Jul 09 j 23:02	3° $\mathring{B}$ 47'06	-8°-53'-20	conjunction	-1415 Jan 17 j 07:21	15° $\mathring{B}$ 49'23	-11°-18'-26
direct	-1424 Sep 28 j 15:20	2° $\mathring{B}$ 37'45		minimum elong	-1415 Jan 17 j 07:08	15° $\mathring{B}$ 49'22	11°18'30
				max. Earth dist.	-1415 Jan 20 j 11:38	15° $\mathring{B}$ 54'45	41.33214 AU
conjunction	-1423 Jan 06 j 02:48	4° $\mathring{B}$ 29'55	-8°-37'-24	retrograde	-1415 Apr 30 j 22:22	17° $\mathring{B}$ 39'55	
minimum elong	-1423 Jan 06 j 02:36	4° $\mathring{B}$ 29'54	8°37'27	min. Earth dist.	-1415 Jul 20 j 03:19	16° $\mathring{B}$ 35'32	39.49238 AU
max. Earth dist.	-1423 Jan 09 j 07:27	4° $\mathring{B}$ 35'35	39.35612 AU	opposition	-1415 Jul 23 j 07:27	16° $\mathring{B}$ 31'26	-12°-2'-1
retrograde	-1423 Apr 19 j 16:17	6° $\mathring{B}$ 25'52		direct	-1415 Oct 12 j 00:12	15° $\mathring{B}$ 24'30	
min. Earth dist.	-1423 Jul 08 j 11:24	5° $\mathring{B}$ 19'45	37.50779 AU				
opposition	-1423 Jul 11 j 17:23	5° $\mathring{B}$ 15'25	-9°-16'-52	conjunction	-1414 Jan 18 j 21:30	17° $\mathring{B}$ 10'16	-11°-35'-57



# Planetary Phenomena of Pluto from -1900 through -1400 (UT), Astrodienst AG 7-Dez-2017 14:44, page 31

Attention, astronomical year style is used: The year -1414 in astronomical counting style is the year 1415 BCE in historical counting style.

minimum elong	-1414 Jan 18 j 21:18	17° $\overline{3}$ 10'15	11°36'00	min. Earth dist.	-1406 Aug 01 j 09:13	28° $\overline{3}$ 13'37	41.56987 AU
max. Earth dist.	-1414 Jan 22 j 02:35	17° $\overline{3}$ 15'39	41.56853 AU	opposition	-1406 Aug 04 j 11:14	28° $\overline{3}$ 09'46	-14°-21'-49
retrograde	-1414 May 02 j 12:50	19° $\overline{3}$ 00'09		direct	-1406 Oct 24 j 04:03	27° $\overline{3}$ 04'54	
min. Earth dist.	-1414 Jul 21 j 18:29	17° $\overline{3}$ 55'56	39.73017 AU				
opposition	-1414 Jul 24 j 22:27	17° $\overline{3}$ 51'52	-12°-19'-53	conjunction	-1405 Jan 30 j 16:25	28° $\overline{3}$ 45'36	-13°-48'-47
direct	-1414 Oct 13 j 14:37	16° $\overline{3}$ 45'08		minimum elong	-1405 Jan 30 j 16:15	28° $\overline{3}$ 45'36	13°48'49
				max. Earth dist.	-1405 Feb 02 j 18:51	28° $\overline{3}$ 50'35	43.61722 AU
conjunction	-1413 Jan 20 j 11:09	18° $\overline{3}$ 30'15	-11°-52'-54		-1405 Mar 23 j 09:32	0° $\approx$	
minimum elong	-1413 Jan 20 j 10:56	18° $\overline{3}$ 30'14	11°52'57	retrograde	-1405 May 14 j 05:23	0° $\approx$ 30'35	
max. Earth dist.	-1413 Jan 23 j 15:24	18° $\overline{3}$ 35'33	41.80363 AU		-1405 Jul 06 j 17:20	30° $\overline{R}$ $\overline{3}$	
retrograde	-1413 May 04 j 03:35	20° $\overline{3}$ 19'31		min. Earth dist.	-1405 Aug 02 j 23:24	29° $\overline{3}$ 28'03	41.78539 AU
min. Earth dist.	-1413 Jul 23 j 08:28	19° $\overline{3}$ 15'31	39.96688 AU	opposition	-1405 Aug 05 j 23:41	29° $\overline{3}$ 24'18	-14°-34'-41
opposition	-1413 Jul 26 j 13:09	19° $\overline{3}$ 11'26	-12°-37'-9	direct	-1405 Oct 25 j 18:37	28° $\overline{3}$ 19'38	
direct	-1413 Oct 15 j 04:21	18° $\overline{3}$ 04'56					
				conjunction	-1404 Feb 01 j 04:13	29° $\overline{3}$ 59'49	-14°-1'-2
conjunction	-1412 Jan 22 j 00:43	19° $\overline{3}$ 49'25	-12°-9'-16	minimum elong	-1404 Feb 01 j 04:05	29° $\overline{3}$ 59'48	14°01'04
minimum elong	-1412 Jan 22 j 00:31	19° $\overline{3}$ 49'25	12°09'17		-1404 Feb 01 j 06:58	0° $\approx$	
max. Earth dist.	-1412 Jan 25 j 06:01	19° $\overline{3}$ 54'46	42.03761 AU	max. Earth dist.	-1404 Feb 04 j 05:58	0° $\approx$ 04'43	43.82903 AU
retrograde	-1412 May 04 j 14:25	21° $\overline{3}$ 38'05		retrograde	-1404 May 14 j 16:36	1° $\approx$ 44'17	
min. Earth dist.	-1412 Jul 23 j 23:41	20° $\overline{3}$ 34'15	40.20236 AU	min. Earth dist.	-1404 Aug 03 j 11:21	0° $\approx$ 41'55	41.99704 AU
opposition	-1412 Jul 27 j 03:22	20° $\overline{3}$ 30'13	-12°-53'-48	opposition	-1404 Aug 06 j 11:32	0° $\approx$ 38'11	-14°-47'-2
direct	-1412 Oct 15 j 20:53	19° $\overline{3}$ 23'57			-1404 Sep 08 j 05:58	30° $\overline{R}$ $\overline{3}$	
				direct	-1404 Oct 26 j 07:27	29° $\overline{3}$ 33'41	
conjunction	-1411 Jan 22 j 13:55	21° $\overline{3}$ 07'51	-12°-25'-4		-1404 Dec 11 j 19:17	0° $\approx$	
minimum elong	-1411 Jan 22 j 13:43	21° $\overline{3}$ 07'50	12°25'06	conjunction	-1403 Feb 01 j 15:31	1° $\approx$ 13'22	-14°-12'-48
max. Earth dist.	-1411 Jan 25 j 18:29	21° $\overline{3}$ 13'07	42.27048 AU	minimum elong	-1403 Feb 01 j 15:21	1° $\approx$ 13'22	14°12'50
retrograde	-1411 May 06 j 02:22	22° $\overline{3}$ 55'56		max. Earth dist.	-1403 Feb 04 j 16:10	1° $\approx$ 18'10	44.03726 AU
min. Earth dist.	-1411 Jul 25 j 12:46	21° $\overline{3}$ 52'22	40.43654 AU	retrograde	-1403 May 16 j 05:42	2° $\approx$ 57'20	
opposition	-1411 Jul 28 j 17:20	21° $\overline{3}$ 48'18	-13°-9'-51	min. Earth dist.	-1403 Aug 04 j 23:52	1° $\approx$ 55'06	42.20561 AU
direct	-1411 Oct 17 j 11:53	20° $\overline{3}$ 42'16		opposition	-1403 Aug 07 j 23:22	1° $\approx$ 51'24	-14°-58'-54
				direct	-1403 Oct 27 j 17:37	0° $\approx$ 47'05	
conjunction	-1410 Jan 24 j 02:40	22° $\overline{3}$ 25'36	-12°-40'-19				
minimum elong	-1410 Jan 24 j 02:30	22° $\overline{3}$ 25'35	12°40'20	conjunction	-1402 Feb 03 j 02:36	2° $\approx$ 26'16	-14°-24'-6
max. Earth dist.	-1410 Jan 27 j 07:29	22° $\overline{3}$ 30'51	42.50181 AU	minimum elong	-1402 Feb 03 j 02:28	2° $\approx$ 26'16	14°24'09
retrograde	-1410 May 07 j 15:50	24° $\overline{3}$ 13'08		max. Earth dist.	-1402 Feb 06 j 03:57	2° $\approx$ 31'06	44.24269 AU
min. Earth dist.	-1410 Jul 27 j 03:35	23° $\overline{3}$ 09'45	40.66906 AU	retrograde	-1402 May 17 j 17:01	4° $\approx$ 09'45	
opposition	-1410 Jul 30 j 07:12	23° $\overline{3}$ 05'45	-13°-25'-20	min. Earth dist.	-1402 Aug 06 j 12:12	3° $\approx$ 07'38	42.41144 AU
direct	-1410 Oct 19 j 01:36	21° $\overline{3}$ 59'58		opposition	-1402 Aug 09 j 10:53	3° $\approx$ 03'59	-15°-10'-15
				direct	-1402 Oct 29 j 04:42	1° $\approx$ 59'50	
conjunction	-1409 Jan 25 j 15:30	23° $\overline{3}$ 42'44	-12°-55'-1				
minimum elong	-1409 Jan 25 j 15:19	23° $\overline{3}$ 42'43	12°55'03	conjunction	-1401 Feb 04 j 13:29	3° $\approx$ 38'34	-14°-34'-55
max. Earth dist.	-1409 Jan 28 j 20:33	23° $\overline{3}$ 47'59	42.73130 AU	minimum elong	-1401 Feb 04 j 13:21	3° $\approx$ 38'33	14°34'56
retrograde	-1409 May 09 j 04:55	25° $\overline{3}$ 29'45		max. Earth dist.	-1401 Feb 07 j 13:25	3° $\approx$ 43'16	44.44577 AU
min. Earth dist.	-1409 Jul 28 j 17:00	24° $\overline{3}$ 26'34	40.89925 AU	retrograde	-1401 May 19 j 04:47	5° $\approx$ 21'33	
opposition	-1409 Jul 31 j 20:30	24° $\overline{3}$ 22'36	-13°-40'-15	min. Earth dist.	-1401 Aug 07 j 22:51	4° $\approx$ 19'37	42.61511 AU
direct	-1409 Oct 20 j 14:54	23° $\overline{3}$ 17'03		opposition	-1401 Aug 10 j 21:59	4° $\approx$ 15'58	-15°-21'-7
				direct	-1401 Oct 30 j 14:42	3° $\approx$ 12'00	
conjunction	-1408 Jan 27 j 04:00	24° $\overline{3}$ 59'18	-13°-9'-12				
minimum elong	-1408 Jan 27 j 03:50	24° $\overline{3}$ 59'17	13°09'14	conjunction	-1400 Feb 06 j 00:14	4° $\approx$ 50'16	-14°-45'-15
max. Earth dist.	-1408 Jan 30 j 07:44	25° $\overline{3}$ 04'26	42.95814 AU	minimum elong	-1400 Feb 06 j 00:06	4° $\approx$ 50'16	14°45'18
retrograde	-1408 May 09 j 20:27	26° $\overline{3}$ 45'47		max. Earth dist.	-1400 Feb 09 j 00:36	4° $\approx$ 54'59	44.64670 AU
min. Earth dist.	-1408 Jul 29 j 06:29	25° $\overline{3}$ 42'49	41.12658 AU	retrograde	-1400 May 19 j 13:15	6° $\approx$ 32'48	
opposition	-1408 Aug 01 j 09:41	25° $\overline{3}$ 38'53	-13°-54'-37	min. Earth dist.	-1400 Aug 08 j 11:23	5° $\approx$ 30'59	42.81661 AU
direct	-1408 Oct 21 j 01:11	24° $\overline{3}$ 33'35		opposition	-1400 Aug 11 j 09:02	5° $\approx$ 27'25	-15°-31'-28
				direct	-1400 Oct 31 j 03:00	4° $\approx$ 23'38	
conjunction	-1407 Jan 27 j 16:21	26° $\overline{3}$ 15'19	-13°-22'-53				
minimum elong	-1407 Jan 27 j 16:10	26° $\overline{3}$ 15'18	13°22'56				
max. Earth dist.	-1407 Jan 30 j 20:35	26° $\overline{3}$ 20'27	43.18172 AU				
retrograde	-1407 May 11 j 08:28	28° $\overline{3}$ 01'18					
min. Earth dist.	-1407 Jul 30 j 20:53	26° $\overline{3}$ 58'28	41.35019 AU				
opposition	-1407 Aug 02 j 22:36	26° $\overline{3}$ 54'37	-14°-8'-28				
direct	-1407 Oct 22 j 14:29	25° $\overline{3}$ 49'32					
conjunction	-1406 Jan 29 j 04:32	27° $\overline{3}$ 30'46	-13°-36'-4				
minimum elong	-1406 Jan 29 j 04:23	27° $\overline{3}$ 30'45	13°36'07				
max. Earth dist.	-1406 Feb 01 j 07:11	27° $\overline{3}$ 35'46	43.40154 AU				
retrograde	-1406 May 12 j 19:09	29° $\overline{3}$ 16'14					



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 1

Attention, astronomical year style is used: The year -1400 in astronomical counting style is the year 1401 BCE in historical counting style.

conjunction	-1400 Feb 06 j 00:14	4°≈50'16	-14°-45'-15	minimum elong	-1392 Feb 15 j 07:57	14°≈07'19	15°52'13
minimum elong	-1400 Feb 06 j 00:06	4°≈50'16	14°45'18	max. Earth dist.	-1392 Feb 18 j 02:36	14°≈11'31	46.14646 AU
max. Earth dist.	-1400 Feb 09 j 00:36	4°≈54'59	44.64670 AU		-1392 Mar 23 j 01:10	15°≈	
retrograde	-1400 May 19 j 13:15	6°≈32'48		retrograde	-1392 May 28 j 18:58	15°≈46'36	
min. Earth dist.	-1400 Aug 08 j 11:23	5°≈30'59	42.81661 AU		-1392 Aug 06 j 02:00	15°≈	
opposition	-1400 Aug 11 j 09:02	5°≈27'25	-15°-31'-28	min. Earth dist.	-1392 Aug 18 j 02:07	14°≈45'47	44.31178 AU
direct	-1400 Oct 31 j 03:00	4°≈23'38		opposition	-1392 Aug 20 j 17:25	14°≈42'36	-16°-38'-10
				direct	-1392 Nov 09 j 14:47	13°≈40'09	
conjunction	-1399 Feb 06 j 10:40	6°≈01'27	-14°-55'-7		-1391 Feb 05 j 20:38	15°≈	
minimum elong	-1399 Feb 06 j 10:32	6°≈01'26	14°55'09				
max. Earth dist.	-1399 Feb 09 j 10:29	6°≈06'07	44.84563 AU	conjunction	-1391 Feb 15 j 17:04	15°≈14'48	-15°-58'-46
retrograde	-1399 May 20 j 21:22	7°≈43'33		minimum elong	-1391 Feb 15 j 17:01	15°≈14'48	15°58'48
min. Earth dist.	-1399 Aug 09 j 21:33	6°≈41'56	43.01587 AU	max. Earth dist.	-1391 Feb 18 j 09:44	15°≈18'52	46.31478 AU
opposition	-1399 Aug 12 j 19:44	6°≈38'21	-15°-41'-21	retrograde	-1391 May 30 j 06:37	16°≈53'40	
direct	-1399 Nov 01 j 16:15	5°≈34'45		min. Earth dist.	-1391 Aug 19 j 11:41	15°≈52'57	44.47930 AU
				opposition	-1391 Aug 22 j 02:34	15°≈49'48	-16°-44'-40
conjunction	-1398 Feb 07 j 20:54	7°≈12'09	-15°-4'-32		-1391 Oct 08 j 22:17	15°≈	
minimum elong	-1398 Feb 07 j 20:47	7°≈12'09	15°04'34	direct	-1391 Nov 10 j 21:19	14°≈47'29	
max. Earth dist.	-1398 Feb 10 j 19:57	7°≈16'45	45.04223 AU		-1391 Dec 13 j 10:58	15°≈	
retrograde	-1398 May 22 j 09:45	8°≈53'51					
min. Earth dist.	-1398 Aug 11 j 09:10	7°≈52'22	43.21278 AU	conjunction	-1390 Feb 17 j 02:08	16°≈21'45	-16°-4'-59
opposition	-1398 Aug 14 j 06:22	7°≈48'50	-15°-50'-44	minimum elong	-1390 Feb 17 j 02:03	16°≈21'45	16°05'01
direct	-1398 Nov 03 j 01:54	6°≈45'26		max. Earth dist.	-1390 Feb 19 j 19:03	16°≈25'49	46.47940 AU
				retrograde	-1390 May 31 j 14:53	18°≈00'14	
conjunction	-1397 Feb 09 j 07:07	8°≈22'26	-15°-13'-29	min. Earth dist.	-1390 Aug 20 j 22:15	16°≈59'33	44.64330 AU
minimum elong	-1397 Feb 09 j 07:01	8°≈22'25	15°13'31	opposition	-1390 Aug 23 j 11:28	16°≈56'30	-16°-50'-47
max. Earth dist.	-1397 Feb 12 j 06:29	8°≈27'01	45.23630 AU	direct	-1390 Nov 12 j 06:35	15°≈54'17	
retrograde	-1397 May 23 j 20:30	10°≈03'43					
min. Earth dist.	-1397 Aug 12 j 20:21	9°≈02'23	43.40659 AU	conjunction	-1389 Feb 18 j 11:00	17°≈28'12	-16°-10'-47
opposition	-1397 Aug 15 j 16:41	8°≈58'54	-15°-59'-41	minimum elong	-1389 Feb 18 j 10:58	17°≈28'12	16°10'50
direct	-1397 Nov 04 j 11:43	7°≈55'42		max. Earth dist.	-1389 Feb 21 j 02:42	17°≈32'11	46.64095 AU
				retrograde	-1389 Jun 01 j 21:14	19°≈06'19	
conjunction	-1396 Feb 10 j 17:09	9°≈32'17	-15°-22'-1	min. Earth dist.	-1389 Aug 22 j 06:34	18°≈05'46	44.80432 AU
minimum elong	-1396 Feb 10 j 17:02	9°≈32'17	15°22'04	opposition	-1389 Aug 24 j 20:07	18°≈02'42	-16°-56'-29
max. Earth dist.	-1396 Feb 13 j 14:46	9°≈36'45	45.42705 AU	direct	-1389 Nov 13 j 16:51	17°≈00'38	
retrograde	-1396 May 24 j 08:24	11°≈13'10					
min. Earth dist.	-1396 Aug 13 j 06:42	10°≈12'00	43.59687 AU	conjunction	-1388 Feb 19 j 19:40	18°≈34'13	-16°-16'-13
opposition	-1396 Aug 16 j 02:43	10°≈08'33	-16°-8'-11	minimum elong	-1388 Feb 19 j 19:37	18°≈34'12	16°16'14
direct	-1396 Nov 04 j 19:46	9°≈05'32		max. Earth dist.	-1388 Feb 22 j 10:40	18°≈38'08	46.79956 AU
				retrograde	-1388 Jun 02 j 04:44	20°≈11'59	
conjunction	-1395 Feb 11 j 03:06	10°≈41'45	-15°-30'-8	min. Earth dist.	-1388 Aug 22 j 16:31	19°≈11'30	44.96258 AU
minimum elong	-1395 Feb 11 j 03:01	10°≈41'44	15°30'10	opposition	-1388 Aug 25 j 04:36	19°≈08'30	-17°-1'-47
max. Earth dist.	-1395 Feb 14 j 00:46	10°≈46'11	45.61387 AU	direct	-1388 Nov 14 j 02:54	18°≈06'35	
retrograde	-1395 May 25 j 16:46	12°≈22'13					
min. Earth dist.	-1395 Aug 14 j 18:38	11°≈21'07	43.78282 AU	conjunction	-1387 Feb 20 j 04:16	19°≈39'50	-16°-21'-15
opposition	-1395 Aug 17 j 12:46	11°≈17'47	-16°-16'-16	minimum elong	-1387 Feb 20 j 04:14	19°≈39'50	16°21'17
direct	-1395 Nov 06 j 06:51	10°≈14'56		max. Earth dist.	-1387 Feb 22 j 19:14	19°≈43'44	46.95568 AU
				retrograde	-1387 Jun 03 j 12:55	21°≈17'16	
conjunction	-1394 Feb 12 j 12:50	11°≈50'45	-15°-37'-52	min. Earth dist.	-1387 Aug 24 j 01:04	20°≈16'56	45.11812 AU
minimum elong	-1394 Feb 12 j 12:44	11°≈50'45	15°37'54	opposition	-1387 Aug 26 j 12:54	20°≈13'58	-17°-6'-40
max. Earth dist.	-1394 Feb 15 j 08:57	11°≈55'05	45.79627 AU	direct	-1387 Nov 15 j 11:57	19°≈12'11	
retrograde	-1394 May 27 j 00:39	13°≈30'50					
min. Earth dist.	-1394 Aug 16 j 04:33	12°≈29'53	43.96399 AU	conjunction	-1386 Feb 21 j 12:28	20°≈45'08	-16°-25'-54
opposition	-1394 Aug 18 j 22:33	12°≈26'34	-16°-23'-57	minimum elong	-1386 Feb 21 j 12:26	20°≈45'07	16°25'55
direct	-1394 Nov 07 j 17:53	11°≈23'52		max. Earth dist.	-1386 Feb 24 j 01:53	20°≈48'55	47.10910 AU
				retrograde	-1386 Jun 04 j 23:52	22°≈22'16	
conjunction	-1393 Feb 13 j 22:28	12°≈59'18	-15°-45'-13	min. Earth dist.	-1386 Aug 25 j 09:55	21°≈22'03	45.27092 AU
minimum elong	-1393 Feb 13 j 22:24	12°≈59'17	15°45'14	opposition	-1386 Aug 27 j 21:11	21°≈19'07	-17°-11'-10
max. Earth dist.	-1393 Feb 16 j 17:23	13°≈03'32	45.97372 AU	direct	-1386 Nov 16 j 17:52	20°≈17'29	
retrograde	-1393 May 28 j 09:58	14°≈38'59					
min. Earth dist.	-1393 Aug 17 j 15:59	13°≈38'04	44.14027 AU	conjunction	-1385 Feb 22 j 20:51	21°≈50'09	-16°-30'-11
opposition	-1393 Aug 20 j 08:07	13°≈34'51	-16°-31'-15	minimum elong	-1385 Feb 22 j 20:49	21°≈50'09	16°30'13
direct	-1393 Nov 09 j 04:30	12°≈32'17		max. Earth dist.	-1385 Feb 25 j 10:36	21°≈53'56	47.25955 AU
				retrograde	-1385 Jun 06 j 08:23	23°≈26'58	
conjunction	-1392 Feb 15 j 08:02	14°≈07'19	-15°-52'-11	min. Earth dist.	-1385 Aug 26 j 19:28	22°≈26'50	45.42038 AU



## Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 2

Attention, astronomical year style is used: The year -1385 in astronomical counting style is the year 1386 BCE in historical counting style.

opposition	-1385 Aug 29 j 05:08	22° $\approx$ 24'00	-17°-15'-18	opposition	-1377 Sep 06 j 16:02	0° $\approx$ 52'00	-17°-36'-12
direct	-1385 Nov 18 j 00:58	21° $\approx$ 22'31			-1377 Oct 29 j 21:41	30° $\approx$	
				direct	-1377 Nov 26 j 17:26	29° $\approx$ 51'21	
conjunction	-1384 Feb 24 j 05:04	22° $\approx$ 54'55	-16°-34'-6		-1377 Dec 24 j 02:50	0° $\approx$	
minimum elong	-1384 Feb 24 j 05:03	22° $\approx$ 54'55	16°34'07				
max. Earth dist.	-1384 Feb 26 j 17:04	22° $\approx$ 58'36	47.40661 AU	conjunction	-1376 Mar 03 j 18:30	1° $\approx$ 21'34	-16°-53'-50
retrograde	-1384 Jun 06 j 16:31	24° $\approx$ 31'27		minimum elong	-1376 Mar 03 j 18:33	1° $\approx$ 21'34	16°53'52
min. Earth dist.	-1384 Aug 27 j 03:21	23° $\approx$ 31'28	45.56610 AU	max. Earth dist.	-1376 Mar 05 j 21:53	1° $\approx$ 24'38	48.42246 AU
opposition	-1384 Aug 29 j 12:58	23° $\approx$ 28'38	-17°-19'-4	retrograde	-1376 Jun 15 j 00:19	2° $\approx$ 55'45	
direct	-1384 Nov 18 j 08:04	22° $\approx$ 27'19		min. Earth dist.	-1376 Sep 04 j 22:05	1° $\approx$ 56'10	46.56882 AU
				opposition	-1376 Sep 06 j 22:47	1° $\approx$ 53'48	-17°-37'-19
conjunction	-1383 Feb 24 j 13:02	23° $\approx$ 59'27	-16°-37'-41	direct	-1376 Nov 26 j 23:39	0° $\approx$ 53'14	
minimum elong	-1383 Feb 24 j 13:02	23° $\approx$ 59'27	16°37'43				
max. Earth dist.	-1383 Feb 27 j 00:15	24° $\approx$ 03'04	47.54949 AU	conjunction	-1375 Mar 05 j 01:30	2° $\approx$ 23'12	-16°-54'-51
retrograde	-1383 Jun 07 j 22:40	25° $\approx$ 35'42		minimum elong	-1375 Mar 05 j 01:32	2° $\approx$ 23'12	16°54'52
min. Earth dist.	-1383 Aug 28 j 13:24	24° $\approx$ 35'46	45.70740 AU	max. Earth dist.	-1375 Mar 07 j 05:13	2° $\approx$ 26'17	48.53312 AU
opposition	-1383 Aug 30 j 20:51	24° $\approx$ 33'02	-17°-22'-29	retrograde	-1375 Jun 16 j 08:04	3° $\approx$ 57'08	
direct	-1383 Nov 19 j 17:42	23° $\approx$ 31'52		min. Earth dist.	-1375 Sep 06 j 05:43	2° $\approx$ 57'36	46.67825 AU
				opposition	-1375 Sep 08 j 05:24	2° $\approx$ 55'17	-17°-38'-6
conjunction	-1382 Feb 25 j 21:12	25° $\approx$ 03'43	-16°-40'-56	direct	-1375 Nov 28 j 05:53	1° $\approx$ 54'50	
minimum elong	-1382 Feb 25 j 21:13	25° $\approx$ 03'43	16°40'57				
max. Earth dist.	-1382 Feb 28 j 07:40	25° $\approx$ 07'17	47.68784 AU	conjunction	-1374 Mar 06 j 08:29	3° $\approx$ 24'34	-16°-55'-31
retrograde	-1382 Jun 09 j 04:51	26° $\approx$ 39'41		minimum elong	-1374 Mar 06 j 08:33	3° $\approx$ 24'34	16°55'33
min. Earth dist.	-1382 Aug 29 j 21:33	25° $\approx$ 39'51	45.84372 AU	max. Earth dist.	-1374 Mar 08 j 10:31	3° $\approx$ 27'32	48.64116 AU
opposition	-1382 Sep 01 j 04:25	25° $\approx$ 37'10	-17°-25'-35	retrograde	-1374 Jun 17 j 16:55	4° $\approx$ 58'14	
direct	-1382 Nov 21 j 03:51	24° $\approx$ 36'06		min. Earth dist.	-1374 Sep 07 j 12:06	3° $\approx$ 58'50	46.78495 AU
				opposition	-1374 Sep 09 j 11:46	3° $\approx$ 56'31	-17°-38'-32
conjunction	-1381 Feb 27 j 05:07	26° $\approx$ 07'41	-16°-43'-52	direct	-1374 Nov 29 j 09:52	2° $\approx$ 56'10	
minimum elong	-1381 Feb 27 j 05:06	26° $\approx$ 07'41	16°43'55				
max. Earth dist.	-1381 Mar 01 j 13:17	26° $\approx$ 11'06	47.82110 AU	conjunction	-1373 Mar 07 j 15:25	4° $\approx$ 25'43	-16°-55'-53
retrograde	-1381 Jun 10 j 15:46	27° $\approx$ 43'21		minimum elong	-1373 Mar 07 j 15:28	4° $\approx$ 25'43	16°55'54
min. Earth dist.	-1381 Aug 31 j 06:26	26° $\approx$ 43'34	45.97498 AU	max. Earth dist.	-1373 Mar 09 j 16:59	4° $\approx$ 28'39	48.74621 AU
opposition	-1381 Sep 02 j 11:59	26° $\approx$ 40'57	-17°-28'-21	retrograde	-1373 Jun 18 j 22:38	5° $\approx$ 59'09	
direct	-1381 Nov 22 j 09:22	25° $\approx$ 39'59		min. Earth dist.	-1373 Sep 08 j 20:31	4° $\approx$ 59'47	46.88841 AU
				opposition	-1373 Sep 10 j 18:12	4° $\approx$ 57'34	-17°-38'-38
conjunction	-1380 Feb 28 j 13:00	27° $\approx$ 11'17	-16°-46'-31	direct	-1373 Nov 30 j 16:37	3° $\approx$ 57'19	
minimum elong	-1380 Feb 28 j 13:02	27° $\approx$ 11'17	16°46'32				
max. Earth dist.	-1380 Mar 01 j 20:59	27° $\approx$ 14'40	47.94933 AU	conjunction	-1372 Mar 07 j 22:22	5° $\approx$ 26'40	-16°-55'-56
retrograde	-1380 Jun 10 j 23:56	28° $\approx$ 46'39		minimum elong	-1372 Mar 07 j 22:26	5° $\approx$ 26'41	16°55'58
min. Earth dist.	-1380 Aug 31 j 15:25	27° $\approx$ 46'52	46.10121 AU	max. Earth dist.	-1372 Mar 09 j 23:13	5° $\approx$ 29'34	48.84791 AU
opposition	-1380 Sep 02 j 19:13	27° $\approx$ 44'21	-17°-30'-49	retrograde	-1372 Jun 19 j 02:33	6° $\approx$ 59'55	
direct	-1380 Nov 22 j 16:25	26° $\approx$ 43'28		min. Earth dist.	-1372 Sep 09 j 02:56	6° $\approx$ 00'39	46.98806 AU
				opposition	-1372 Sep 11 j 00:17	5° $\approx$ 58'27	-17°-38'-27
conjunction	-1379 Feb 28 j 20:35	28° $\approx$ 14'29	-16°-48'-50	direct	-1372 Dec 01 j 01:32	4° $\approx$ 58'19	
minimum elong	-1379 Feb 28 j 20:35	28° $\approx$ 14'29	16°48'52				
max. Earth dist.	-1379 Mar 03 j 02:41	28° $\approx$ 17'44	48.07305 AU	conjunction	-1371 Mar 09 j 05:09	6° $\approx$ 27'30	-16°-55'-41
retrograde	-1379 Jun 12 j 06:51	29° $\approx$ 49'31		minimum elong	-1371 Mar 09 j 05:13	6° $\approx$ 27'30	16°55'42
min. Earth dist.	-1379 Sep 01 j 22:39	28° $\approx$ 49'50	46.22323 AU	max. Earth dist.	-1371 Mar 11 j 03:56	6° $\approx$ 30'16	48.94551 AU
opposition	-1379 Sep 04 j 02:20	28° $\approx$ 47'19	-17°-32'-57	retrograde	-1371 Jun 20 j 10:47	8° $\approx$ 00'33	
direct	-1379 Nov 23 j 22:52	27° $\approx$ 46'30		min. Earth dist.	-1371 Sep 10 j 10:42	7° $\approx$ 01'19	47.08342 AU
				opposition	-1371 Sep 12 j 06:32	6° $\approx$ 59'12	-17°-37'-57
conjunction	-1378 Mar 02 j 03:55	29° $\approx$ 17'14	-16°-50'-50	direct	-1371 Dec 02 j 07:18	5° $\approx$ 59'11	
minimum elong	-1378 Mar 02 j 03:57	29° $\approx$ 17'15	16°50'51				
max. Earth dist.	-1378 Mar 04 j 09:26	29° $\approx$ 20'28	48.19272 AU	conjunction	-1370 Mar 10 j 12:00	7° $\approx$ 28'11	-16°-55'-10
	-1378 Apr 01 j 21:45	0° $\approx$		minimum elong	-1370 Mar 10 j 12:04	7° $\approx$ 28'11	16°55'12
retrograde	-1378 Jun 13 j 11:34	0° $\approx$ 51'59		max. Earth dist.	-1370 Mar 12 j 10:32	7° $\approx$ 30'55	49.03846 AU
	-1378 Aug 27 j 16:31	30° $\approx$		retrograde	-1370 Jun 21 j 18:14	9° $\approx$ 01'02	
min. Earth dist.	-1378 Sep 03 j 07:34	29° $\approx$ 52'17	46.34152 AU	min. Earth dist.	-1370 Sep 11 j 18:32	8° $\approx$ 01'50	47.17363 AU
opposition	-1378 Sep 05 j 09:25	29° $\approx$ 49'51	-17°-34'-45	opposition	-1370 Sep 13 j 12:40	7° $\approx$ 59'49	-17°-37'-12
direct	-1378 Nov 25 j 08:02	28° $\approx$ 49'08		direct	-1370 Dec 03 j 13:08	6° $\approx$ 59'53	
	-1377 Feb 17 j 18:03	0° $\approx$					
conjunction	-1377 Mar 03 j 11:22	0° $\approx$ 19'36	-16°-52'-30	conjunction	-1369 Mar 11 j 18:50	8° $\approx$ 28'42	-16°-54'-23
minimum elong	-1377 Mar 03 j 11:22	0° $\approx$ 19'36	16°52'31	minimum elong	-1369 Mar 11 j 18:55	8° $\approx$ 28'43	16°54'24
max. Earth dist.	-1377 Mar 05 j 16:19	0° $\approx$ 22'46	48.30911 AU	max. Earth dist.	-1369 Mar 13 j 14:59	8° $\approx$ 31'18	49.12625 AU
retrograde	-1377 Jun 14 j 16:01	1° $\approx$ 54'03		retrograde	-1369 Jun 23 j 02:18	10° $\approx$ 01'20	
min. Earth dist.	-1377 Sep 04 j 14:21	0° $\approx$ 54'25	46.45656 AU	min. Earth dist.	-1369 Sep 13 j 01:04	9° $\approx$ 02'13	47.25860 AU
				opposition	-1369 Sep 14 j 18:34	9° $\approx$ 00'13	-17°-36'-10



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 3

Attention, astronomical year style is used: The year -1369 in astronomical counting style is the year 1370 BCE in historical counting style.

direct	-1369 Dec 04 j 17:10	8° <del>1</del> 00'22		minimum elong	-1360 Mar 20 j 03:39	17° <del>1</del> 23'32	16°35'02
				max. Earth dist.	-1360 Mar 21 j 14:50	17° <del>1</del> 25'34	49.72938 AU
conjunction	-1368 Mar 12 j 01:32	9° <del>1</del> 29'01	-16°-53'-20	retrograde	-1360 Jul 01 j 04:10	18° <del>1</del> 54'34	
minimum elong	-1368 Mar 12 j 01:36	9° <del>1</del> 29'01	16°53'22	opposition	-1360 Sep 22 j 19:57	17° <del>1</del> 54'09	-17°-14'-11
max. Earth dist.	-1368 Mar 13 j 20:38	9° <del>1</del> 31'33	49.20871 AU	min. Earth dist.	-1360 Sep 21 j 12:30	17° <del>1</del> 55'39	47.84130 AU
retrograde	-1368 Jun 23 j 06:58	11° <del>1</del> 01'27		direct	-1360 Dec 13 j 00:25	16° <del>1</del> 54'53	
min. Earth dist.	-1368 Sep 13 j 09:19	10° <del>1</del> 02'17	47.33834 AU				
opposition	-1368 Sep 15 j 00:34	10° <del>1</del> 00'24	-17°-34'-52	conjunction	-1359 Mar 21 j 09:24	18° <del>1</del> 22'13	-16°-31'-29
direct	-1368 Dec 05 j 00:28	9° <del>1</del> 00'37		minimum elong	-1359 Mar 21 j 09:31	18° <del>1</del> 22'14	16°31'31
				max. Earth dist.	-1359 Mar 22 j 18:33	18° <del>1</del> 24'08	49.77879 AU
conjunction	-1367 Mar 13 j 08:00	10° <del>1</del> 29'05	-16°-52'-2	retrograde	-1359 Jul 02 j 12:39	19° <del>1</del> 53'08	
minimum elong	-1367 Mar 13 j 08:06	10° <del>1</del> 29'06	16°52'03	min. Earth dist.	-1359 Sep 22 j 18:25	18° <del>1</del> 54'16	47.88776 AU
max. Earth dist.	-1367 Mar 15 j 02:06	10° <del>1</del> 31'33	49.28637 AU	opposition	-1359 Sep 24 j 01:06	18° <del>1</del> 52'49	-17°-10'-21
retrograde	-1367 Jun 24 j 10:11	12° <del>1</del> 01'18		direct	-1359 Dec 14 j 03:12	17° <del>1</del> 53'36	
min. Earth dist.	-1367 Sep 14 j 15:21	11° <del>1</del> 02'12	47.41339 AU				
opposition	-1367 Sep 16 j 06:18	11° <del>1</del> 00'20	-17°-33'-18	conjunction	-1358 Mar 22 j 15:32	19° <del>1</del> 20'51	-16°-27'-43
direct	-1367 Dec 06 j 08:49	10° <del>1</del> 00'36		minimum elong	-1358 Mar 22 j 15:40	19° <del>1</del> 20'51	16°27'43
				max. Earth dist.	-1358 Mar 23 j 23:38	19° <del>1</del> 22'41	49.82329 AU
conjunction	-1366 Mar 14 j 14:23	11° <del>1</del> 28'54	-16°-50'-27	retrograde	-1358 Jul 03 j 18:29	20° <del>1</del> 51'36	
minimum elong	-1366 Mar 14 j 14:28	11° <del>1</del> 28'54	16°50'29	min. Earth dist.	-1358 Sep 24 j 01:52	19° <del>1</del> 52'42	47.92898 AU
max. Earth dist.	-1366 Mar 16 j 06:37	11° <del>1</del> 31'15	49.35960 AU	opposition	-1358 Sep 25 j 06:13	19° <del>1</del> 51'21	-17°-6'-15
retrograde	-1366 Jun 25 j 16:54	13° <del>1</del> 00'55		direct	-1358 Dec 15 j 07:56	18° <del>1</del> 52'11	
min. Earth dist.	-1366 Sep 15 j 22:37	12° <del>1</del> 01'48	47.48446 AU				
opposition	-1366 Sep 17 j 11:57	12° <del>1</del> 00'01	-17°-31'-27	conjunction	-1357 Mar 23 j 21:45	20° <del>1</del> 19'20	-16°-23'-42
direct	-1366 Dec 07 j 14:58	11° <del>1</del> 00'20		minimum elong	-1357 Mar 23 j 21:52	20° <del>1</del> 19'20	16°23'44
				max. Earth dist.	-1357 Mar 25 j 04:22	20° <del>1</del> 21'06	49.86254 AU
conjunction	-1365 Mar 15 j 20:52	12° <del>1</del> 28'27	-16°-48'-36	retrograde	-1357 Jul 04 j 22:01	21° <del>1</del> 49'57	
minimum elong	-1365 Mar 15 j 20:59	12° <del>1</del> 28'27	16°48'38	min. Earth dist.	-1357 Sep 25 j 07:29	20° <del>1</del> 51'04	47.96466 AU
max. Earth dist.	-1365 Mar 17 j 13:05	12° <del>1</del> 30'47	49.42910 AU	opposition	-1357 Sep 26 j 11:13	20° <del>1</del> 49'45	-17°-1'-56
retrograde	-1365 Jun 26 j 23:27	14° <del>1</del> 00'17		direct	-1357 Dec 16 j 14:32	19° <del>1</del> 50'36	
min. Earth dist.	-1365 Sep 17 j 05:10	13° <del>1</del> 01'11	47.55183 AU				
opposition	-1365 Sep 18 j 17:29	12° <del>1</del> 59'27	-17°-29'-18	conjunction	-1356 Mar 24 j 03:39	21° <del>1</del> 17'39	-16°-19'-28
direct	-1365 Dec 08 j 21:05	11° <del>1</del> 59'50		minimum elong	-1356 Mar 24 j 03:48	21° <del>1</del> 17'39	16°19'28
				max. Earth dist.	-1356 Mar 25 j 08:00	21° <del>1</del> 19'16	49.89618 AU
conjunction	-1364 Mar 16 j 03:03	13° <del>1</del> 27'47	-16°-46'-27	retrograde	-1356 Jul 05 j 02:57	22° <del>1</del> 48'07	
minimum elong	-1364 Mar 16 j 03:08	13° <del>1</del> 27'47	16°46'28	opposition	-1356 Sep 26 j 16:14	21° <del>1</del> 47'57	-16°-57'-23
max. Earth dist.	-1364 Mar 17 j 17:19	13° <del>1</del> 30'00	49.49528 AU	min. Earth dist.	-1356 Sep 25 j 14:30	21° <del>1</del> 49'11	47.99496 AU
retrograde	-1364 Jun 27 j 08:24	14° <del>1</del> 59'25		direct	-1356 Dec 16 j 20:50	20° <del>1</del> 48'49	
min. Earth dist.	-1364 Sep 17 j 10:46	14° <del>1</del> 00'24	47.61609 AU				
opposition	-1364 Sep 18 j 22:51	13° <del>1</del> 58'40	-17°-26'-52	conjunction	-1355 Mar 25 j 09:40	22° <del>1</del> 15'45	-16°-14'-59
direct	-1364 Dec 08 j 23:12	12° <del>1</del> 59'06		minimum elong	-1355 Mar 25 j 09:48	22° <del>1</del> 15'45	16°15'01
				max. Earth dist.	-1355 Mar 26 j 13:34	22° <del>1</del> 17'21	49.92474 AU
conjunction	-1363 Mar 17 j 09:13	14° <del>1</del> 26'55	-16°-44'-1	retrograde	-1355 Jul 06 j 07:06	23° <del>1</del> 46'05	
minimum elong	-1363 Mar 17 j 09:20	14° <del>1</del> 26'56	16°44'03	opposition	-1355 Sep 27 j 21:04	22° <del>1</del> 45'56	-16°-52'-35
max. Earth dist.	-1363 Mar 18 j 23:08	14° <del>1</del> 29'07	49.55840 AU	min. Earth dist.	-1355 Sep 26 j 20:31	22° <del>1</del> 47'07	48.02029 AU
retrograde	-1363 Jun 28 j 14:39	15° <del>1</del> 58'23		direct	-1355 Dec 18 j 03:48	21° <del>1</del> 46'49	
min. Earth dist.	-1363 Sep 18 j 18:04	14° <del>1</del> 59'21	47.67733 AU				
opposition	-1363 Sep 20 j 04:18	14° <del>1</del> 57'43	-17°-24'-8	conjunction	-1354 Mar 26 j 15:24	23° <del>1</del> 13'37	-16°-10'-17
direct	-1363 Dec 10 j 03:31	13° <del>1</del> 58'13		minimum elong	-1354 Mar 26 j 15:34	23° <del>1</del> 13'38	16°10'18
				max. Earth dist.	-1354 Mar 27 j 17:07	23° <del>1</del> 15'06	49.94874 AU
conjunction	-1362 Mar 18 j 15:19	15° <del>1</del> 25'54	-16°-41'-18	retrograde	-1354 Jul 07 j 15:07	24° <del>1</del> 43'49	
minimum elong	-1362 Mar 18 j 15:25	15° <del>1</del> 25'54	16°41'18	min. Earth dist.	-1354 Sep 28 j 01:59	23° <del>1</del> 44'50	48.04139 AU
max. Earth dist.	-1362 Mar 20 j 04:28	15° <del>1</del> 28'03	49.61872 AU	opposition	-1354 Sep 29 j 01:51	23° <del>1</del> 43'42	-16°-47'-32
retrograde	-1362 Jun 29 j 16:49	16° <del>1</del> 57'12		direct	-1354 Dec 19 j 06:28	22° <del>1</del> 44'35	
min. Earth dist.	-1362 Sep 19 j 23:17	15° <del>1</del> 58'15	47.73552 AU				
opposition	-1362 Sep 21 j 09:34	15° <del>1</del> 56'37	-17°-21'-6	conjunction	-1353 Mar 27 j 21:16	24° <del>1</del> 11'18	-16°-5'-19
direct	-1362 Dec 11 j 11:56	14° <del>1</del> 57'11		minimum elong	-1353 Mar 27 j 21:24	24° <del>1</del> 11'18	16°05'20
				max. Earth dist.	-1353 Mar 28 j 22:18	24° <del>1</del> 12'43	49.96864 AU
conjunction	-1361 Mar 19 j 21:22	16° <del>1</del> 24'45	-16°-38'-18	retrograde	-1353 Jul 08 j 21:32	25° <del>1</del> 41'21	
minimum elong	-1361 Mar 19 j 21:30	16° <del>1</del> 24'46	16°38'19	min. Earth dist.	-1353 Sep 29 j 08:40	24° <del>1</del> 42'18	48.05866 AU
max. Earth dist.	-1361 Mar 21 j 08:43	16° <del>1</del> 26'48	49.67580 AU	opposition	-1353 Sep 30 j 06:31	24° <del>1</del> 41'16	-16°-42'-13
retrograde	-1361 Jun 30 j 21:57	17° <del>1</del> 55'55		direct	-1353 Dec 20 j 10:06	23° <del>1</del> 42'09	
min. Earth dist.	-1361 Sep 21 j 06:06	16° <del>1</del> 56'59	47.79039 AU				
opposition	-1361 Sep 22 j 14:46	16° <del>1</del> 55'25	-17°-17'-47	conjunction	-1352 Mar 28 j 03:01	25° <del>1</del> 08'47	-16°00'-6
direct	-1361 Dec 12 j 18:40	15° <del>1</del> 56'04		minimum elong	-1352 Mar 28 j 03:11	25° <del>1</del> 08'48	16°00'06
				max. Earth dist.	-1352 Mar 29 j 03:10	25° <del>1</del> 10'10	49.98519 AU
conjunction	-1360 Mar 20 j 03:32	17° <del>1</del> 23'32	-16°-35'-1	retrograde	-1352 Jul 09 j 00:16	26° <del>1</del> 38'44	



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 4

Attention, astronomical year style is used: The year -1352 in astronomical counting style is the year 1353 BCE in historical counting style.

opposition	-1352 Sep 30 j 11:07	25° <del>✕</del> 38'41	-16°-36'-39	max. Earth dist.	-1344 Apr 05 j 13:40	2° <del>°</del> 48'31	49.99384 AU
min. Earth dist.	-1352 Sep 29 j 13:10	25° <del>✕</del> 39'43	48.07269 AU	retrograde	-1344 Jul 16 j 19:30	4° <del>°</del> 17'16	
direct	-1352 Dec 20 j 16:31	24° <del>✕</del> 39'35		opposition	-1344 Oct 07 j 23:25	3° <del>°</del> 17'35	-15°-42'-37
				min. Earth dist.	-1344 Oct 07 j 11:10	3° <del>°</del> 18'10	48.05650 AU
conjunction	-1351 Mar 29 j 08:26	26° <del>✕</del> 06'09	-15°-54'-36	direct	-1344 Dec 28 j 06:53	2° <del>°</del> 18'41	
minimum elong	-1351 Mar 29 j 08:35	26° <del>✕</del> 06'09	15°54'37				
max. Earth dist.	-1351 Mar 30 j 06:52	26° <del>✕</del> 07'26	49.99860 AU	conjunction	-1343 Apr 06 j 05:48	3° <del>°</del> 45'07	-15°-1'-42
retrograde	-1351 Jul 10 j 04:15	27° <del>✕</del> 36'00		minimum elong	-1343 Apr 06 j 06:00	3° <del>°</del> 45'07	15°01'42
opposition	-1351 Oct 01 j 15:52	26° <del>✕</del> 35'59	-16°-30'-47	max. Earth dist.	-1343 Apr 06 j 18:20	3° <del>°</del> 45'49	49.97420 AU
min. Earth dist.	-1351 Sep 30 j 19:26	26° <del>✕</del> 36'58	48.08379 AU	retrograde	-1343 Jul 18 j 03:06	5° <del>°</del> 14'34	
direct	-1351 Dec 21 j 22:56	25° <del>✕</del> 36'55		opposition	-1343 Oct 09 j 03:57	4° <del>°</del> 14'53	-15°-34'-48
				min. Earth dist.	-1343 Oct 08 j 17:49	4° <del>°</del> 15'22	48.03329 AU
conjunction	-1350 Mar 30 j 14:11	27° <del>✕</del> 03'26	-15°-48'-51	direct	-1343 Dec 29 j 09:25	3° <del>°</del> 15'57	
minimum elong	-1350 Mar 30 j 14:22	27° <del>✕</del> 03'27	15°48'52				
max. Earth dist.	-1350 Mar 31 j 12:47	27° <del>✕</del> 04'44	50.00920 AU	conjunction	-1342 Apr 07 j 11:30	4° <del>°</del> 42'22	-14°-54'-3
retrograde	-1350 Jul 11 j 09:17	28° <del>✕</del> 33'14		minimum elong	-1342 Apr 07 j 11:40	4° <del>°</del> 42'22	14°54'04
opposition	-1350 Oct 02 j 20:22	27° <del>✕</del> 33'16	-16°-24'-39	max. Earth dist.	-1342 Apr 07 j 22:47	4° <del>°</del> 43'00	49.95008 AU
min. Earth dist.	-1350 Oct 02 j 00:47	27° <del>✕</del> 34'12	48.09189 AU	retrograde	-1342 Jul 19 j 06:53	6° <del>°</del> 11'45	
direct	-1350 Dec 23 j 04:39	26° <del>✕</del> 34'14		opposition	-1342 Oct 10 j 08:09	5° <del>°</del> 12'03	-15°-26'-45
				min. Earth dist.	-1342 Oct 09 j 22:15	5° <del>°</del> 12'31	48.00582 AU
conjunction	-1349 Mar 31 j 19:48	28° <del>✕</del> 00'43	-15°-42'-50	direct	-1342 Dec 30 j 14:19	4° <del>°</del> 13'05	
minimum elong	-1349 Mar 31 j 19:58	28° <del>✕</del> 00'44	15°42'51				
max. Earth dist.	-1349 Apr 01 j 16:21	28° <del>✕</del> 01'53	50.01688 AU	conjunction	-1341 Apr 08 j 17:06	5° <del>°</del> 39'29	-14°-46'-10
retrograde	-1349 Jul 12 j 17:30	29° <del>✕</del> 30'27		minimum elong	-1341 Apr 08 j 17:18	5° <del>°</del> 39'30	14°46'11
min. Earth dist.	-1349 Oct 03 j 05:52	28° <del>✕</del> 31'28	48.09696 AU	max. Earth dist.	-1341 Apr 09 j 02:25	5° <del>°</del> 40'01	49.92186 AU
opposition	-1349 Oct 04 j 00:55	28° <del>✕</del> 30'33	-16°-18'-15	retrograde	-1341 Jul 20 j 09:35	7° <del>°</del> 08'49	
direct	-1349 Dec 24 j 06:40	27° <del>✕</del> 31'34		opposition	-1341 Oct 11 j 12:34	6° <del>°</del> 09'07	-15°-18'-26
				min. Earth dist.	-1341 Oct 11 j 04:31	6° <del>°</del> 09'29	47.97462 AU
conjunction	-1348 Apr 01 j 01:23	28° <del>✕</del> 58'02	-15°-36'-34	direct	-1341 Dec 31 j 21:17	5° <del>°</del> 10'06	
minimum elong	-1348 Apr 01 j 01:33	28° <del>✕</del> 58'03	15°36'35				
max. Earth dist.	-1348 Apr 01 j 21:18	28° <del>✕</del> 59'10	50.02115 AU	conjunction	-1340 Apr 08 j 22:41	6° <del>°</del> 36'30	-14°-38'-2
	-1348 May 21 j 02:17	0° <del>°</del>		minimum elong	-1340 Apr 08 j 22:51	6° <del>°</del> 36'31	14°38'03
retrograde	-1348 Jul 12 j 23:19	0° <del>°</del> 27'44		max. Earth dist.	-1340 Apr 09 j 07:59	6° <del>°</del> 37'02	49.89018 AU
	-1348 Sep 04 j 08:26	30° <del>°</del> <del>✕</del>		retrograde	-1340 Jul 20 j 12:06	8° <del>°</del> 05'48	
opposition	-1348 Oct 04 j 05:29	29° <del>✕</del> 27'54	-16°-11'-36	opposition	-1340 Oct 11 j 16:52	7° <del>°</del> 06'05	-15°-9'-52
min. Earth dist.	-1348 Oct 03 j 12:25	29° <del>✕</del> 28'42	48.09833 AU	min. Earth dist.	-1340 Oct 11 j 09:30	7° <del>°</del> 06'26	47.94005 AU
direct	-1348 Dec 24 j 10:14	28° <del>✕</del> 28'57		direct	-1339 Jan 01 j 04:47	6° <del>°</del> 07'03	
conjunction	-1347 Apr 02 j 07:04	29° <del>✕</del> 55'25	-15°-30'-2	conjunction	-1339 Apr 10 j 04:09	7° <del>°</del> 33'27	-14°-29'-39
minimum elong	-1347 Apr 02 j 07:15	29° <del>✕</del> 55'26	15°30'03	minimum elong	-1339 Apr 10 j 04:22	7° <del>°</del> 33'27	14°29'40
max. Earth dist.	-1347 Apr 03 j 01:55	29° <del>✕</del> 56'30	50.02169 AU	max. Earth dist.	-1339 Apr 10 j 11:29	7° <del>°</del> 33'52	49.85550 AU
	-1347 Apr 05 j 15:39	0° <del>°</del>		retrograde	-1339 Jul 21 j 19:17	9° <del>°</del> 02'43	
retrograde	-1347 Jul 14 j 03:13	1° <del>°</del> 25'04		opposition	-1339 Oct 12 j 21:08	8° <del>°</del> 03'00	-15°-1'-3
opposition	-1347 Oct 05 j 09:54	0° <del>°</del> 25'17	-16°-4'-42	min. Earth dist.	-1339 Oct 12 j 14:19	8° <del>°</del> 03'19	47.90268 AU
min. Earth dist.	-1347 Oct 04 j 17:13	0° <del>°</del> 26'05	48.09555 AU	direct	-1338 Jan 02 j 07:33	7° <del>°</del> 03'56	
	-1347 Oct 28 j 09:30	30° <del>°</del> <del>✕</del>					
direct	-1347 Dec 25 j 15:39	29° <del>✕</del> 26'23		conjunction	-1338 Apr 11 j 09:46	8° <del>°</del> 30'22	-14°-21'-1
	-1346 Feb 20 j 21:48	0° <del>°</del>		minimum elong	-1338 Apr 11 j 09:57	8° <del>°</del> 30'22	14°21'01
				max. Earth dist.	-1338 Apr 11 j 16:31	8° <del>°</del> 30'45	49.81793 AU
conjunction	-1346 Apr 03 j 12:42	0° <del>°</del> 52'52	-15°-23'-17	retrograde	-1338 Jul 23 j 01:40	9° <del>°</del> 59'38	
minimum elong	-1346 Apr 03 j 12:52	0° <del>°</del> 52'52	15°23'18	opposition	-1338 Oct 14 j 01:34	8° <del>°</del> 59'55	-14°-51'-57
max. Earth dist.	-1346 Apr 04 j 05:18	0° <del>°</del> 53'48	50.01758 AU	min. Earth dist.	-1338 Oct 13 j 20:27	9° <del>°</del> 00'09	47.86235 AU
retrograde	-1346 Jul 15 j 07:47	2° <del>°</del> 22'28		direct	-1337 Jan 03 j 10:54	8° <del>°</del> 00'50	
opposition	-1346 Oct 06 j 14:31	1° <del>°</del> 22'45	-15°-57'-34				
min. Earth dist.	-1346 Oct 06 j 00:01	1° <del>°</del> 23'26	48.08787 AU	conjunction	-1337 Apr 12 j 15:26	9° <del>°</del> 27'18	-14°-12'-7
direct	-1346 Dec 26 j 21:34	0° <del>°</del> 23'51		minimum elong	-1337 Apr 12 j 15:39	9° <del>°</del> 27'19	14°12'08
				max. Earth dist.	-1337 Apr 12 j 21:20	9° <del>°</del> 27'38	49.77756 AU
conjunction	-1345 Apr 04 j 18:36	1° <del>°</del> 50'19	-15°-16'-18	retrograde	-1337 Jul 24 j 06:48	10° <del>°</del> 56'34	
minimum elong	-1345 Apr 04 j 18:47	1° <del>°</del> 50'20	15°16'18	opposition	-1337 Oct 15 j 05:45	9° <del>°</del> 56'53	-14°-42'-35
max. Earth dist.	-1345 Apr 05 j 10:33	1° <del>°</del> 51'14	50.00835 AU	min. Earth dist.	-1337 Oct 15 j 00:46	9° <del>°</del> 57'07	47.81902 AU
retrograde	-1345 Jul 16 j 11:23	3° <del>°</del> 19'53		direct	-1336 Jan 04 j 15:04	8° <del>°</del> 57'47	
opposition	-1345 Oct 07 j 18:56	2° <del>°</del> 20'12	-15°-50'-12				
min. Earth dist.	-1345 Oct 07 j 05:37	2° <del>°</del> 20'49	48.07476 AU	conjunction	-1336 Apr 12 j 21:02	10° <del>°</del> 24'20	-14°-2'-58
direct	-1345 Dec 28 j 04:24	1° <del>°</del> 21'18		minimum elong	-1336 Apr 12 j 21:13	10° <del>°</del> 24'20	14°02'58
				max. Earth dist.	-1336 Apr 13 j 00:59	10° <del>°</del> 24'33	49.73392 AU
conjunction	-1344 Apr 05 j 00:15	2° <del>°</del> 47'45	-15°-9'-7	retrograde	-1336 Jul 24 j 11:29	11° <del>°</del> 53'38	
minimum elong	-1344 Apr 05 j 00:25	2° <del>°</del> 47'46	15°09'08	opposition	-1336 Oct 15 j 10:12	10° <del>°</del> 53'57	-14°-32'-59



## Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 5

Attention, astronomical year style is used: The year -1336 in astronomical counting style is the year 1337 BCE in historical counting style.

min. Earth dist.	-1336 Oct 15 j 07:05	10° $\Upsilon$ 54'06	47.77226 AU	conjunction	-1327 Apr 22 j 01:59	19° $\Upsilon$ 02'03	-12°-30'-19
direct	-1335 Jan 04 j 20:04	9° $\Upsilon$ 54'52		minimum elong	-1327 Apr 22 j 02:11	19° $\Upsilon$ 02'04	12°30'19
				max. Earth dist.	-1327 Apr 21 j 17:55	19° $\Upsilon$ 01'36	49.13389 AU
conjunction	-1335 Apr 14 j 02:43	11° $\Upsilon$ 21'28	-13°-53'-34	retrograde	-1327 Aug 02 j 13:42	20° $\Upsilon$ 31'49	
minimum elong	-1335 Apr 14 j 02:54	11° $\Upsilon$ 21'29	13°53'36	opposition	-1327 Oct 24 j 02:31	19° $\Upsilon$ 31'58	-12°-55'-53
max. Earth dist.	-1335 Apr 14 j 06:26	11° $\Upsilon$ 21'41	49.68656 AU	min. Earth dist.	-1327 Oct 24 j 10:08	19° $\Upsilon$ 31'36	47.13919 AU
retrograde	-1335 Jul 25 j 14:54	12° $\Upsilon$ 50'49		direct	-1326 Jan 13 j 13:52	18° $\Upsilon$ 32'26	
opposition	-1335 Oct 16 j 14:36	11° $\Upsilon$ 51'10	-14°-23'-7				
min. Earth dist.	-1335 Oct 16 j 12:30	11° $\Upsilon$ 51'16	47.72127 AU	conjunction	-1326 Apr 23 j 08:00	19° $\Upsilon$ 59'56	-12°-18'-50
direct	-1334 Jan 06 j 02:42	10° $\Upsilon$ 52'04		minimum elong	-1326 Apr 23 j 08:12	19° $\Upsilon$ 59'57	12°18'51
				max. Earth dist.	-1326 Apr 22 j 22:01	19° $\Upsilon$ 59'22	49.04711 AU
conjunction	-1334 Apr 15 j 08:32	12° $\Upsilon$ 18'46	-13°-43'-57	retrograde	-1326 Aug 03 j 18:36	21° $\Upsilon$ 29'47	
minimum elong	-1334 Apr 15 j 08:44	12° $\Upsilon$ 18'46	13°43'57	opposition	-1326 Oct 25 j 07:06	20° $\Upsilon$ 29'54	-12°-43'-51
max. Earth dist.	-1334 Apr 15 j 09:48	12° $\Upsilon$ 18'50	49.63469 AU	min. Earth dist.	-1326 Oct 25 j 16:33	20° $\Upsilon$ 29'26	47.04951 AU
retrograde	-1334 Jul 26 j 22:16	13° $\Upsilon$ 48'10		direct	-1325 Jan 14 j 19:14	19° $\Upsilon$ 30'19	
opposition	-1334 Oct 17 j 18:57	12° $\Upsilon$ 48'31	-14°-13'-2				
min. Earth dist.	-1334 Oct 17 j 18:06	12° $\Upsilon$ 48'33	47.66551 AU	conjunction	-1325 Apr 24 j 14:14	20° $\Upsilon$ 57'58	-12°-7'-5
direct	-1333 Jan 07 j 05:50	11° $\Upsilon$ 49'24		minimum elong	-1325 Apr 24 j 14:26	20° $\Upsilon$ 57'58	12°07'05
				max. Earth dist.	-1325 Apr 24 j 04:11	20° $\Upsilon$ 57'23	48.95747 AU
conjunction	-1333 Apr 16 j 14:33	13° $\Upsilon$ 16'11	-13°-34'-7	retrograde	-1325 Aug 04 j 21:41	22° $\Upsilon$ 27'55	
minimum elong	-1333 Apr 16 j 14:45	13° $\Upsilon$ 16'12	13°34'08	opposition	-1325 Oct 26 j 11:47	21° $\Upsilon$ 28'00	-12°-31'-33
max. Earth dist.	-1333 Apr 16 j 14:35	13° $\Upsilon$ 16'11	49.57759 AU	min. Earth dist.	-1325 Oct 26 j 21:44	21° $\Upsilon$ 27'31	46.95675 AU
retrograde	-1333 Jul 28 j 05:50	14° $\Upsilon$ 45'38		direct	-1324 Jan 16 j 02:39	20° $\Upsilon$ 28'22	
opposition	-1333 Oct 18 j 23:34	13° $\Upsilon$ 45'59	-14°-2'-43				
min. Earth dist.	-1333 Oct 19 j 00:58	13° $\Upsilon$ 45'55	47.60428 AU	conjunction	-1324 Apr 24 j 20:12	21° $\Upsilon$ 56'10	-11°-55'-5
direct	-1332 Jan 08 j 08:45	12° $\Upsilon$ 46'51		minimum elong	-1324 Apr 24 j 20:24	21° $\Upsilon$ 56'11	11°55'07
				max. Earth dist.	-1324 Apr 24 j 08:07	21° $\Upsilon$ 55'29	48.86470 AU
conjunction	-1332 Apr 16 j 20:24	14° $\Upsilon$ 13'43	-13°-24'-3	retrograde	-1324 Aug 05 j 04:01	23° $\Upsilon$ 26'16	
minimum elong	-1332 Apr 16 j 20:37	14° $\Upsilon$ 13'43	13°24'03	opposition	-1324 Oct 26 j 16:29	22° $\Upsilon$ 26'19	-12°-18'-59
max. Earth dist.	-1332 Apr 16 j 18:55	14° $\Upsilon$ 13'38	49.51517 AU	min. Earth dist.	-1324 Oct 27 j 03:29	22° $\Upsilon$ 25'47	46.86072 AU
retrograde	-1332 Jul 28 j 11:36	15° $\Upsilon$ 43'11		direct	-1323 Jan 16 j 07:05	21° $\Upsilon$ 26'38	
opposition	-1332 Oct 19 j 04:01	14° $\Upsilon$ 43'32	-13°-52'-11				
min. Earth dist.	-1332 Oct 19 j 05:48	14° $\Upsilon$ 43'27	47.53768 AU	conjunction	-1323 Apr 26 j 02:33	22° $\Upsilon$ 54'36	-11°-42'-51
direct	-1331 Jan 08 j 12:40	13° $\Upsilon$ 44'20		minimum elong	-1323 Apr 26 j 02:45	22° $\Upsilon$ 54'37	11°42'51
				max. Earth dist.	-1323 Apr 25 j 13:37	22° $\Upsilon$ 53'52	48.76822 AU
conjunction	-1331 Apr 18 j 02:16	15° $\Upsilon$ 11'18	-13°-13'-47	retrograde	-1323 Aug 06 j 11:55	24° $\Upsilon$ 24'50	
minimum elong	-1331 Apr 18 j 02:27	15° $\Upsilon$ 11'18	13°13'48	opposition	-1323 Oct 27 j 21:16	23° $\Upsilon$ 24'52	-12°-6'-10
max. Earth dist.	-1331 Apr 17 j 22:28	15° $\Upsilon$ 11'05	49.44744 AU	min. Earth dist.	-1323 Oct 28 j 10:13	23° $\Upsilon$ 24'14	46.76064 AU
retrograde	-1331 Jul 29 j 15:20	16° $\Upsilon$ 40'49		direct	-1322 Jan 17 j 10:17	22° $\Upsilon$ 25'07	
opposition	-1331 Oct 20 j 08:32	15° $\Upsilon$ 41'07	-13°-41'-25				
min. Earth dist.	-1331 Oct 20 j 12:36	15° $\Upsilon$ 40'56	47.46609 AU	conjunction	-1322 Apr 27 j 09:00	23° $\Upsilon$ 53'16	-11°-30'-22
direct	-1330 Jan 09 j 19:09	14° $\Upsilon$ 41'52		minimum elong	-1322 Apr 27 j 09:12	23° $\Upsilon$ 53'17	11°30'22
				max. Earth dist.	-1322 Apr 26 j 18:38	23° $\Upsilon$ 52'27	48.66750 AU
conjunction	-1330 Apr 19 j 08:18	16° $\Upsilon$ 08'55	-13°-3'-16	retrograde	-1322 Aug 07 j 20:30	25° $\Upsilon$ 23'38	
minimum elong	-1330 Apr 19 j 08:31	16° $\Upsilon$ 08'56	13°03'17	opposition	-1322 Oct 29 j 02:04	24° $\Upsilon$ 23'37	-11°-53'-6
max. Earth dist.	-1330 Apr 19 j 04:07	16° $\Upsilon$ 08'41	49.37496 AU	min. Earth dist.	-1322 Oct 29 j 15:31	24° $\Upsilon$ 22'58	46.65589 AU
retrograde	-1330 Jul 30 j 17:44	17° $\Upsilon$ 38'29		direct	-1321 Jan 18 j 12:52	23° $\Upsilon$ 23'47	
opposition	-1330 Oct 21 j 13:01	16° $\Upsilon$ 38'45	-13°-30'-25				
min. Earth dist.	-1330 Oct 21 j 17:58	16° $\Upsilon$ 38'31	47.38984 AU	conjunction	-1321 Apr 28 j 15:32	24° $\Upsilon$ 52'08	-11°-17'-39
direct	-1329 Jan 11 j 03:10	15° $\Upsilon$ 39'26		minimum elong	-1321 Apr 28 j 15:44	24° $\Upsilon$ 52'09	11°17'38
				max. Earth dist.	-1321 Apr 27 j 22:47	24° $\Upsilon$ 51'11	48.56166 AU
conjunction	-1329 Apr 20 j 14:11	17° $\Upsilon$ 06'34	-12°-52'-32	retrograde	-1321 Aug 09 j 01:49	26° $\Upsilon$ 22'38	
minimum elong	-1329 Apr 20 j 14:22	17° $\Upsilon$ 06'35	12°52'32	opposition	-1321 Oct 30 j 07:03	25° $\Upsilon$ 22'33	-11°-39'-48
max. Earth dist.	-1329 Apr 20 j 07:38	17° $\Upsilon$ 06'12	49.29817 AU	min. Earth dist.	-1321 Oct 30 j 22:54	25° $\Upsilon$ 21'48	46.54596 AU
retrograde	-1329 Aug 01 j 00:56	18° $\Upsilon$ 36'12		direct	-1320 Jan 19 j 18:46	24° $\Upsilon$ 22'38	
opposition	-1329 Oct 22 j 17:23	17° $\Upsilon$ 36'25	-13°-19'-10				
min. Earth dist.	-1329 Oct 22 j 23:17	17° $\Upsilon$ 36'09	47.30968 AU	conjunction	-1320 Apr 28 j 22:14	25° $\Upsilon$ 51'10	-11°-4'-42
direct	-1328 Jan 12 j 06:18	16° $\Upsilon$ 37'02		minimum elong	-1320 Apr 28 j 22:25	25° $\Upsilon$ 51'10	11°04'42
				max. Earth dist.	-1320 Apr 28 j 04:49	25° $\Upsilon$ 50'10	48.45066 AU
conjunction	-1328 Apr 20 j 20:09	18° $\Upsilon$ 04'17	-12°-41'-33	retrograde	-1320 Aug 09 j 04:12	27° $\Upsilon$ 21'47	
minimum elong	-1328 Apr 20 j 20:22	18° $\Upsilon$ 04'17	12°41'34	opposition	-1320 Oct 30 j 12:04	26° $\Upsilon$ 21'38	-11°-26'-15
max. Earth dist.	-1328 Apr 20 j 12:57	18° $\Upsilon$ 03'52	49.21760 AU	min. Earth dist.	-1320 Oct 31 j 04:49	26° $\Upsilon$ 20'49	46.43078 AU
retrograde	-1328 Aug 01 j 07:42	19° $\Upsilon$ 33'58		direct	-1319 Jan 20 j 03:36	25° $\Upsilon$ 21'36	
opposition	-1328 Oct 22 j 22:00	18° $\Upsilon$ 34'09	-13°-7'-40	max. Earth dist.	-1319 Apr 29 j 08:44	26° $\Upsilon$ 49'09	48.33461 AU
min. Earth dist.	-1328 Oct 23 j 05:36	18° $\Upsilon$ 33'47	47.22596 AU				
direct	-1327 Jan 12 j 09:40	17° $\Upsilon$ 34'42		conjunction	-1319 Apr 30 j 04:42	26° $\Upsilon$ 50'18	-10°-51'-31
				minimum elong	-1319 Apr 30 j 04:55	26° $\Upsilon$ 50'19	10°51'31



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 6

Attention, astronomical year style is used: The year -1319 in astronomical counting style is the year 1320 BCE in historical counting style.

retrograde	-1319 Aug 10 j 10:29	28° $\Upsilon$ 21'03		conjunction	-1311 May 08 j 12:25	4° $\text{♄}$ 49'16	-8°-56'-57
opposition	-1319 Oct 31 j 17:09	27° $\Upsilon$ 20'48	-11°-12'-28	minimum elong	-1311 May 08 j 12:36	4° $\text{♄}$ 49'17	8°56'57
min. Earth dist.	-1319 Nov 01 j 11:09	27° $\Upsilon$ 19'56	46.31076 AU	retrograde	-1311 Aug 18 j 18:42	6° $\text{♄}$ 21'37	
direct	-1318 Jan 21 j 08:58	26° $\Upsilon$ 20'39		opposition	-1311 Nov 08 j 12:12	5° $\text{♄}$ 20'42	-9°-12'-29
				min. Earth dist.	-1311 Nov 09 j 15:16	5° $\text{♄}$ 19'22	45.22757 AU
conjunction	-1318 May 01 j 11:32	27° $\Upsilon$ 49'32	-10°-38'-6	direct	-1310 Jan 29 j 01:29	4° $\text{♄}$ 19'37	
minimum elong	-1318 May 01 j 11:44	27° $\Upsilon$ 49'32	10°38'06				
max. Earth dist.	-1318 Apr 30 j 14:38	27° $\Upsilon$ 48'19	48.21376 AU	conjunction	-1310 May 09 j 20:09	5° $\text{♄}$ 50'36	-8°-41'-26
retrograde	-1318 Aug 11 j 16:55	29° $\Upsilon$ 20'25		minimum elong	-1310 May 09 j 20:20	5° $\text{♄}$ 50'37	8°41'25
opposition	-1318 Nov 01 j 22:13	28° $\Upsilon$ 20'05	-10°-58'-26	max. Earth dist.	-1310 May 08 j 14:16	5° $\text{♄}$ 48'50	47.12986 AU
min. Earth dist.	-1318 Nov 02 j 18:10	28° $\Upsilon$ 19'07	46.18623 AU	retrograde	-1310 Aug 19 j 23:04	7° $\text{♄}$ 23'12	
direct	-1317 Jan 22 j 14:01	27° $\Upsilon$ 19'48		opposition	-1310 Nov 09 j 17:58	6° $\text{♄}$ 22'13	-8°-56'-15
				min. Earth dist.	-1310 Nov 10 j 21:45	6° $\text{♄}$ 20'51	45.07750 AU
conjunction	-1317 May 02 j 18:21	28° $\Upsilon$ 48'52	-10°-24'-26	direct	-1309 Jan 30 j 10:47	5° $\text{♄}$ 21'01	
minimum elong	-1317 May 02 j 18:33	28° $\Upsilon$ 48'53	10°24'26	max. Earth dist.	-1309 May 09 j 19:19	6° $\text{♄}$ 50'25	46.97895 AU
max. Earth dist.	-1317 May 01 j 20:15	28° $\Upsilon$ 47'35	48.08888 AU				
	-1317 Jun 30 j 09:09	0° $\text{♄}$		conjunction	-1309 May 11 j 03:54	6° $\text{♄}$ 52'21	-8°-25'-40
retrograde	-1317 Aug 13 j 00:21	0° $\text{♄}$ 19'54		minimum elong	-1309 May 11 j 04:04	6° $\text{♄}$ 52'21	8°25'41
	-1317 Sep 25 j 20:35	30° $\text{♄}$		retrograde	-1309 Aug 21 j 05:49	8° $\text{♄}$ 25'14	
opposition	-1317 Nov 03 j 03:19	29° $\Upsilon$ 19'27	-10°-44'-7	opposition	-1309 Nov 11 j 00:05	7° $\text{♄}$ 24'09	-8°-39'-45
min. Earth dist.	-1317 Nov 03 j 23:29	29° $\Upsilon$ 18'29	46.05794 AU	min. Earth dist.	-1309 Nov 12 j 05:24	7° $\text{♄}$ 22'42	44.92277 AU
direct	-1316 Jan 23 j 18:18	28° $\Upsilon$ 19'02		direct	-1308 Jan 31 j 17:42	6° $\text{♄}$ 22'49	
max. Earth dist.	-1316 May 02 j 00:57	29° $\Upsilon$ 46'56	47.96034 AU	max. Earth dist.	-1308 May 10 j 02:19	7° $\text{♄}$ 52'29	46.82307 AU
conjunction	-1316 May 03 j 00:58	29° $\Upsilon$ 48'19	-10°-10'-31	conjunction	-1308 May 11 j 11:46	7° $\text{♄}$ 54'28	-8°-9'-40
minimum elong	-1316 May 03 j 01:09	29° $\Upsilon$ 48'20	10°10'31	minimum elong	-1308 May 11 j 11:57	7° $\text{♄}$ 54'28	8°09'39
	-1316 May 11 j 11:11	0° $\text{♄}$		retrograde	-1308 Aug 21 j 12:42	9° $\text{♄}$ 27'38	
retrograde	-1316 Aug 13 j 07:10	1° $\text{♄}$ 19'31		opposition	-1308 Nov 11 j 06:22	8° $\text{♄}$ 26'26	-8°-22'-59
opposition	-1316 Nov 03 j 08:38	0° $\text{♄}$ 18'58	-10°-29'-33	min. Earth dist.	-1308 Nov 12 j 13:28	8° $\text{♄}$ 24'54	44.76302 AU
min. Earth dist.	-1316 Nov 04 j 06:38	0° $\text{♄}$ 17'54	45.92640 AU	direct	-1307 Feb 01 j 00:10	7° $\text{♄}$ 24'57	
	-1316 Nov 19 j 21:32	30° $\text{♄}$		max. Earth dist.	-1307 May 11 j 08:42	8° $\text{♄}$ 54'50	46.66248 AU
direct	-1315 Jan 23 j 23:35	29° $\Upsilon$ 18'25					
	-1315 Mar 29 j 00:45	0° $\text{♄}$		conjunction	-1307 May 12 j 19:49	8° $\text{♄}$ 56'55	-7°-53'-24
max. Earth dist.	-1315 May 03 j 07:56	0° $\text{♄}$ 46'33	47.82885 AU	minimum elong	-1307 May 12 j 19:58	8° $\text{♄}$ 56'55	7°53'25
				retrograde	-1307 Aug 22 j 22:14	10° $\text{♄}$ 30'21	
conjunction	-1315 May 04 j 07:55	0° $\text{♄}$ 47'56	-9°-56'-20	opposition	-1307 Nov 12 j 12:31	9° $\text{♄}$ 29'02	-8°-5'-57
minimum elong	-1315 May 04 j 08:08	0° $\text{♄}$ 47'57	9°56'21	min. Earth dist.	-1307 Nov 13 j 20:12	9° $\text{♄}$ 27'28	44.59869 AU
retrograde	-1315 Aug 14 j 11:02	2° $\text{♄}$ 19'19		direct	-1306 Feb 02 j 04:38	8° $\text{♄}$ 27'22	
opposition	-1315 Nov 04 j 13:51	1° $\text{♄}$ 18'41	-10°-14'-42	max. Earth dist.	-1306 May 12 j 14:45	9° $\text{♄}$ 57'27	46.49726 AU
min. Earth dist.	-1315 Nov 05 j 12:11	1° $\text{♄}$ 17'35	45.79202 AU				
direct	-1314 Jan 25 j 07:37	0° $\text{♄}$ 18'00		conjunction	-1306 May 14 j 04:01	9° $\text{♄}$ 59'40	-7°-36'-53
				minimum elong	-1306 May 14 j 04:12	9° $\text{♄}$ 59'41	7°36'53
conjunction	-1314 May 05 j 14:51	1° $\text{♄}$ 47'46	-9°-41'-53	retrograde	-1306 Aug 24 j 08:12	11° $\text{♄}$ 33'23	
minimum elong	-1314 May 05 j 15:02	1° $\text{♄}$ 47'47	9°41'53	opposition	-1306 Nov 13 j 19:01	10° $\text{♄}$ 31'54	-7°-48'-38
max. Earth dist.	-1314 May 04 j 12:48	1° $\text{♄}$ 46'15	47.69475 AU	min. Earth dist.	-1306 Nov 15 j 04:52	10° $\text{♄}$ 30'14	44.43006 AU
retrograde	-1314 Aug 15 j 17:35	3° $\text{♄}$ 19'22		direct	-1305 Feb 03 j 09:59	9° $\text{♄}$ 30'04	
opposition	-1314 Nov 05 j 19:17	2° $\text{♄}$ 18'39	-9°-59'-34	max. Earth dist.	-1305 May 13 j 22:48	11° $\text{♄}$ 00'28	46.32806 AU
min. Earth dist.	-1314 Nov 06 j 18:35	2° $\text{♄}$ 17'30	45.65517 AU				
direct	-1313 Jan 26 j 12:55	1° $\text{♄}$ 17'52		conjunction	-1305 May 15 j 12:22	11° $\text{♄}$ 02'43	-7°-20'-6
				minimum elong	-1305 May 15 j 12:31	11° $\text{♄}$ 02'43	7°20'06
conjunction	-1313 May 06 j 22:00	2° $\text{♄}$ 47'54	-9°-27'-10	retrograde	-1305 Aug 25 j 14:37	12° $\text{♄}$ 36'42	
minimum elong	-1313 May 06 j 22:11	2° $\text{♄}$ 47'54	9°27'11	opposition	-1305 Nov 15 j 01:27	11° $\text{♄}$ 35'04	-7°-31'-2
max. Earth dist.	-1313 May 05 j 19:27	2° $\text{♄}$ 46'21	47.55801 AU	min. Earth dist.	-1305 Nov 16 j 11:41	11° $\text{♄}$ 33'22	44.25769 AU
retrograde	-1313 Aug 17 j 00:54	4° $\text{♄}$ 19'43		direct	-1304 Feb 04 j 18:55	10° $\text{♄}$ 33'01	
opposition	-1313 Nov 07 j 00:49	3° $\text{♄}$ 18'56	-9°-44'-10	max. Earth dist.	-1304 May 14 j 04:54	12° $\text{♄}$ 03'39	46.15543 AU
min. Earth dist.	-1313 Nov 08 j 01:32	3° $\text{♄}$ 17'43	45.51565 AU				
direct	-1312 Jan 27 j 17:46	2° $\text{♄}$ 18'03		conjunction	-1304 May 15 j 20:40	12° $\text{♄}$ 06'02	-7°-3'-3
max. Earth dist.	-1312 May 06 j 01:35	3° $\text{♄}$ 46'46	47.41874 AU	minimum elong	-1304 May 15 j 20:50	12° $\text{♄}$ 06'03	7°03'03
				retrograde	-1304 Aug 25 j 21:40	13° $\text{♄}$ 40'19	
conjunction	-1312 May 07 j 05:10	3° $\text{♄}$ 48'23	-9°-12'-11	opposition	-1304 Nov 15 j 08:07	12° $\text{♄}$ 38'32	-7°-13'-10
minimum elong	-1312 May 07 j 05:21	3° $\text{♄}$ 48'23	9°12'11	min. Earth dist.	-1304 Nov 16 j 19:40	12° $\text{♄}$ 36'45	44.08234 AU
retrograde	-1312 Aug 17 j 10:54	5° $\text{♄}$ 20'27		direct	-1303 Feb 05 j 02:09	11° $\text{♄}$ 36'17	
opposition	-1312 Nov 07 j 06:21	4° $\text{♄}$ 19'36	-9°-28'-28	max. Earth dist.	-1303 May 15 j 13:03	13° $\text{♄}$ 07'15	45.97988 AU
min. Earth dist.	-1312 Nov 08 j 07:10	4° $\text{♄}$ 18'23	45.37336 AU				
direct	-1311 Jan 27 j 20:24	3° $\text{♄}$ 18'37		conjunction	-1303 May 17 j 05:12	13° $\text{♄}$ 09'40	-6°-45'-43
max. Earth dist.	-1311 May 07 j 07:00	4° $\text{♄}$ 47'33	47.27623 AU	minimum elong	-1303 May 17 j 05:21	13° $\text{♄}$ 09'40	6°45'43
				retrograde	-1303 Aug 27 j 03:10	14° $\text{♄}$ 44'16	



Attention, astronomical year style is used: The year -1303 in astronomical counting style is the year 1304 BCE in historical counting style.

opposition	-1303 Nov 16 j 15:01	13° <del>8</del> 42'19	-6°-54'-59	minimum elong	-1295 May 26 j 09:18	21° <del>8</del> 55'52	4°17'06
min. Earth dist.	-1303 Nov 18 j 03:43	13° <del>8</del> 40'28	43.90422 AU	retrograde	-1295 Sep 05 j 09:46	23° <del>8</del> 33'43	
direct	-1302 Feb 06 j 11:03	12° <del>8</del> 39'53		opposition	-1295 Nov 25 j 04:41	22° <del>8</del> 30'32	-4°-18'-56
max. Earth dist.	-1302 May 16 j 20:34	14° <del>8</del> 11'08	45.80190 AU	min. Earth dist.	-1295 Nov 27 j 02:02	22° <del>8</del> 28'12	42.37226 AU
				direct	-1294 Feb 14 j 21:29	21° <del>8</del> 26'31	
conjunction	-1302 May 18 j 13:56	14° <del>8</del> 13'38	-6°-28'-7	max. Earth dist.	-1294 May 25 j 14:48	23° <del>8</del> 00'51	44.26392 AU
minimum elong	-1302 May 18 j 14:06	14° <del>8</del> 13'39	6°28'07				
	-1302 Jun 20 j 22:59	15° <del>8</del>		conjunction	-1294 May 27 j 19:45	23° <del>8</del> 04'09	-3°-57'-19
retrograde	-1302 Aug 28 j 13:17	15° <del>8</del> 48'35		minimum elong	-1294 May 27 j 19:51	23° <del>8</del> 04'10	3°57'19
	-1302 Nov 06 j 14:41	15° <del>8</del>		retrograde	-1294 Sep 06 j 20:04	24° <del>8</del> 42'27	
opposition	-1302 Nov 17 j 21:53	14° <del>8</del> 46'29	-6°-36'-31	opposition	-1294 Nov 26 j 13:18	23° <del>8</del> 39'05	-3°-58'-6
min. Earth dist.	-1302 Nov 19 j 10:43	14° <del>8</del> 44'38	43.72385 AU	min. Earth dist.	-1294 Nov 28 j 12:38	23° <del>8</del> 36'38	42.16263 AU
direct	-1301 Feb 07 j 15:57	13° <del>8</del> 43'51		direct	-1293 Feb 16 j 06:17	22° <del>8</del> 34'49	
	-1301 May 07 j 11:12	15° <del>8</del>		max. Earth dist.	-1293 May 27 j 01:17	24° <del>8</del> 09'38	44.05325 AU
max. Earth dist.	-1301 May 18 j 04:02	15° <del>8</del> 15'26	45.62153 AU				
				conjunction	-1293 May 29 j 06:38	24° <del>8</del> 12'59	-3°-37'-14
conjunction	-1301 May 19 j 22:53	15° <del>8</del> 18'02	-6°-10'-14	minimum elong	-1293 May 29 j 06:44	24° <del>8</del> 13'00	3°37'13
minimum elong	-1301 May 19 j 23:02	15° <del>8</del> 18'02	6°10'14	retrograde	-1293 Sep 08 j 03:02	25° <del>8</del> 51'45	
retrograde	-1301 Aug 29 j 23:46	16° <del>8</del> 53'20		opposition	-1293 Nov 27 j 22:15	24° <del>8</del> 48'10	-3°-36'-59
opposition	-1301 Nov 19 j 05:12	15° <del>8</del> 51'05	-6°-17'-45	min. Earth dist.	-1293 Nov 29 j 22:30	24° <del>8</del> 45'40	41.94948 AU
min. Earth dist.	-1301 Nov 20 j 19:55	15° <del>8</del> 49'08	43.54119 AU	direct	-1292 Feb 17 j 18:15	23° <del>8</del> 43'38	
	-1300 Jan 07 j 13:25	15° <del>8</del>		max. Earth dist.	-1292 May 27 j 10:22	25° <del>8</del> 18'53	43.83946 AU
direct	-1300 Feb 08 j 20:40	14° <del>8</del> 48'17					
	-1300 Mar 12 j 05:28	15° <del>8</del>		conjunction	-1292 May 29 j 17:22	25° <del>8</del> 22'22	-3°-16'-52
max. Earth dist.	-1300 May 18 j 12:58	16° <del>8</del> 20'17	45.43887 AU	minimum elong	-1292 May 29 j 17:27	25° <del>8</del> 22'22	3°16'53
				retrograde	-1292 Sep 08 j 13:35	27° <del>8</del> 01'37	
conjunction	-1300 May 20 j 07:54	16° <del>8</del> 22'54	-5°-52'-4	opposition	-1292 Nov 28 j 07:18	25° <del>8</del> 57'48	-3°-15'-34
minimum elong	-1300 May 20 j 08:02	16° <del>8</del> 22'54	5°52'05	min. Earth dist.	-1292 Nov 30 j 08:05	25° <del>8</del> 55'16	41.73362 AU
retrograde	-1300 Aug 30 j 08:01	17° <del>8</del> 58'35		direct	-1291 Feb 18 j 02:35	24° <del>8</del> 53'00	
opposition	-1300 Nov 19 j 12:34	16° <del>8</del> 56'12	-5°-58'-40	max. Earth dist.	-1291 May 28 j 20:33	26° <del>8</del> 28'45	43.62298 AU
min. Earth dist.	-1300 Nov 21 j 03:22	16° <del>8</del> 54'15	43.35598 AU				
direct	-1299 Feb 09 j 05:56	15° <del>8</del> 53'14		conjunction	-1291 May 31 j 04:38	26° <del>8</del> 32'18	-2°-56'-14
max. Earth dist.	-1299 May 19 j 19:56	17° <del>8</del> 25'33	45.25338 AU	minimum elong	-1291 May 31 j 04:42	26° <del>8</del> 32'19	2°56'14
				retrograde	-1291 Sep 10 j 01:06	28° <del>8</del> 12'05	
conjunction	-1299 May 21 j 17:11	17° <del>8</del> 28'19	-5°-33'-38	opposition	-1291 Nov 29 j 16:38	27° <del>8</del> 08'03	-2°-53'-50
minimum elong	-1299 May 21 j 17:18	17° <del>8</del> 28'20	5°33'37	min. Earth dist.	-1291 Dec 01 j 19:11	27° <del>8</del> 05'24	41.51545 AU
retrograde	-1299 Aug 31 j 17:00	19° <del>8</del> 04'24		direct	-1290 Feb 19 j 09:24	26° <del>8</del> 02'58	
opposition	-1299 Nov 20 j 20:03	18° <del>8</del> 01'54	-5°-39'-18	max. Earth dist.	-1290 May 30 j 07:41	27° <del>8</del> 39'17	43.40455 AU
min. Earth dist.	-1299 Nov 22 j 12:31	17° <del>8</del> 59'51	43.16777 AU				
direct	-1298 Feb 10 j 14:09	16° <del>8</del> 58'44		conjunction	-1290 Jun 01 j 16:09	27° <del>8</del> 42'52	-2°-35'-19
max. Earth dist.	-1298 May 21 j 05:11	18° <del>8</del> 31'31	45.06431 AU	minimum elong	-1290 Jun 01 j 16:13	27° <del>8</del> 42'52	2°35'19
				retrograde	-1290 Sep 11 j 13:31	29° <del>8</del> 23'11	
conjunction	-1298 May 23 j 02:57	18° <del>8</del> 34'19	-5°-14'-54	opposition	-1290 Dec 01 j 02:13	28° <del>8</del> 18'55	-2°-31'-48
minimum elong	-1298 May 23 j 03:05	18° <del>8</del> 34'20	5°14'55	min. Earth dist.	-1290 Dec 03 j 04:35	28° <del>8</del> 16'17	41.29553 AU
retrograde	-1298 Sep 02 j 00:41	20° <del>8</del> 10'51		direct	-1289 Feb 20 j 19:11	27° <del>8</del> 13'35	
opposition	-1298 Nov 22 j 03:56	19° <del>8</del> 08'11	-5°-19'-39	max. Earth dist.	-1289 May 31 j 17:21	28° <del>8</del> 50'23	43.18433 AU
min. Earth dist.	-1298 Nov 23 j 21:52	19° <del>8</del> 06'03	42.97558 AU				
direct	-1297 Feb 11 j 23:21	18° <del>8</del> 04'51		conjunction	-1289 Jun 03 j 03:45	28° <del>8</del> 54'07	-2°-14'-7
max. Earth dist.	-1297 May 22 j 13:04	19° <del>8</del> 37'59	44.87107 AU	minimum elong	-1289 Jun 03 j 03:49	28° <del>8</del> 54'07	2°14'07
					-1289 Jul 19 j 15:39	0° <del>II</del>	
conjunction	-1297 May 24 j 12:45	19° <del>8</del> 40'55	-4°-55'-55	retrograde	-1289 Sep 13 j 03:16	0° <del>II</del> 34'59	
minimum elong	-1297 May 24 j 12:52	19° <del>8</del> 40'56	4°55'54		-1289 Nov 08 j 06:03	30° <del>R</del> <del>8</del>	
retrograde	-1297 Sep 03 j 11:01	21° <del>8</del> 17'53		opposition	-1289 Dec 02 j 12:09	29° <del>8</del> 30'30	-2°-9'-28
opposition	-1297 Nov 23 j 11:54	20° <del>8</del> 15'05	-4°-59'-42	min. Earth dist.	-1289 Dec 04 j 16:02	29° <del>8</del> 27'46	41.07408 AU
min. Earth dist.	-1297 Nov 25 j 06:36	20° <del>8</del> 12'54	42.77906 AU	direct	-1288 Feb 22 j 04:37	28° <del>8</del> 24'54	
direct	-1296 Feb 13 j 06:04	19° <del>8</del> 11'32			-1288 May 30 j 17:00	0° <del>II</del>	
max. Earth dist.	-1296 May 22 j 21:13	20° <del>8</del> 45'03	44.67315 AU	max. Earth dist.	-1288 Jun 01 j 05:39	0° <del>II</del> 02'22	42.96255 AU
conjunction	-1296 May 24 j 22:53	20° <del>8</del> 48'07	-4°-36'-39	conjunction	-1288 Jun 03 j 15:50	0° <del>II</del> 06'06	-1°-52'-38
minimum elong	-1296 May 24 j 22:59	20° <del>8</del> 48'07	4°36'39	minimum elong	-1288 Jun 03 j 15:53	0° <del>II</del> 06'06	1°52'38
retrograde	-1296 Sep 03 j 22:36	22° <del>8</del> 25'31		retrograde	-1288 Sep 13 j 13:55	1° <del>II</del> 47'33	
opposition	-1296 Nov 23 j 20:16	21° <del>8</del> 22'32	-4°-39'-27	opposition	-1288 Dec 02 j 22:19	0° <del>II</del> 42'52	-1°-46'-50
min. Earth dist.	-1296 Nov 25 j 17:12	21° <del>8</del> 20'14	42.57790 AU	min. Earth dist.	-1288 Dec 05 j 02:38	0° <del>II</del> 40'06	40.85095 AU
direct	-1295 Feb 13 j 12:32	20° <del>8</del> 18'46			-1287 Jan 08 j 16:52	30° <del>R</del> <del>8</del>	
max. Earth dist.	-1295 May 24 j 06:51	21° <del>8</del> 52'44	44.47074 AU	direct	-1287 Feb 22 j 16:58	29° <del>8</del> 37'01	
					-1287 Apr 08 j 04:40	0° <del>II</del>	
conjunction	-1295 May 26 j 09:12	21° <del>8</del> 55'52	-4°-17'-7	max. Earth dist.	-1287 Jun 02 j 16:06	1° <del>II</del> 15'01	42.73894 AU



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 8

Attention, astronomical year style is used: The year -1287 in astronomical counting style is the year 1288 BCE in historical counting style.

conjunction	-1287 Jun 05 j 04:05	1°II18'54	-1°-30'-53	conjunction	-1279 Jun 15 j 19:49	11°II31'36	1°32'48
minimum elong	-1287 Jun 05 j 04:08	1°II18'54	1°30'53	minimum elong	-1279 Jun 15 j 19:46	11°II31'36	1°32'49
retrograde	-1287 Sep 15 j 01:25	3°II00'58		retrograde	-1279 Sep 25 j 16:15	13°II19'07	
opposition	-1287 Dec 04 j 08:45	1°II56'05	-1°-23'-53	opposition	-1279 Dec 14 j 09:06	12°II11'59	1°50'06
min. Earth dist.	-1287 Dec 06 j 14:01	1°II53'15	40.62579 AU	min. Earth dist.	-1279 Dec 16 j 23:27	12°II08'33	38.71606 AU
direct	-1286 Feb 24 j 03:18	0°II49'57		direct	-1278 Mar 06 j 00:16	11°II03'11	
max. Earth dist.	-1286 Jun 04 j 03:55	2°II28'35	42.51266 AU	max. Earth dist.	-1278 Jun 14 j 13:48	12°II47'16	40.59207 AU
conjunction	-1286 Jun 06 j 16:56	2°II32'34	-1°-8'-51	conjunction	-1278 Jun 17 j 11:26	12°II52'03	1°56'53
minimum elong	-1286 Jun 06 j 16:58	2°II32'34	1°08'50	minimum elong	-1278 Jun 17 j 11:22	12°II52'02	1°56'55
retrograde	-1286 Sep 16 j 12:28	4°II15'16		retrograde	-1278 Sep 27 j 08:34	14°II40'20	
opposition	-1286 Dec 05 j 19:36	3°II10'09	-1°00'-39	opposition	-1278 Dec 15 j 22:44	13°II32'54	2°15'35
min. Earth dist.	-1286 Dec 08 j 02:39	3°II07'13	40.39776 AU	min. Earth dist.	-1278 Dec 18 j 12:45	13°II29'27	38.46864 AU
direct	-1285 Feb 25 j 13:40	2°II03'46		direct	-1277 Mar 07 j 13:55	12°II23'44	
max. Earth dist.	-1285 Jun 05 j 16:05	3°II43'01	42.28334 AU	max. Earth dist.	-1277 Jun 16 j 04:01	14°II08'35	40.34394 AU
conjunction	-1285 Jun 08 j 06:04	3°II47'05	0°-46'-32	conjunction	-1277 Jun 19 j 03:21	14°II13'31	2°21'12
minimum elong	-1285 Jun 08 j 06:05	3°II47'05	0°46'32	minimum elong	-1277 Jun 19 j 03:17	14°II13'30	2°21'13
retrograde	-1285 Sep 18 j 02:59	5°II30'26		retrograde	-1277 Sep 29 j 01:50	16°II02'37	
opposition	-1285 Dec 07 j 06:47	4°II25'05	0°-37'-7	opposition	-1277 Dec 17 j 12:56	14°II54'53	2°41'20
min. Earth dist.	-1285 Dec 09 j 14:04	4°II22'07	40.16649 AU	min. Earth dist.	-1277 Dec 20 j 04:05	14°II51'22	38.22108 AU
direct	-1284 Feb 26 j 22:28	3°II18'24		direct	-1276 Mar 08 j 03:08	13°II45'22	
max. Earth dist.	-1284 Jun 06 j 03:11	4°II58'14	42.05040 AU	max. Earth dist.	-1276 Jun 16 j 20:43	15°II31'09	40.09554 AU
conjunction	-1284 Jun 08 j 19:22	5°II02'27	0°-23'-59	conjunction	-1276 Jun 19 j 19:44	15°II36'06	2°45'44
minimum elong	-1284 Jun 08 j 19:23	5°II02'28	0°23'58	minimum elong	-1276 Jun 19 j 19:38	15°II36'06	2°45'46
retrograde	-1284 Sep 18 j 17:49	6°II46'29		retrograde	-1276 Sep 29 j 16:47	17°II26'04	
opposition	-1284 Dec 07 j 18:25	5°II40'51	0°-13'-17	opposition	-1276 Dec 18 j 03:36	16°II18'04	3°07'19
min. Earth dist.	-1284 Dec 10 j 03:54	5°II37'46	39.93169 AU	min. Earth dist.	-1276 Dec 20 j 19:13	16°II14'29	37.97320 AU
direct	-1283 Feb 27 j 08:13	4°II33'51		direct	-1275 Mar 09 j 19:49	15°II08'12	
max. Earth dist.	-1283 Jun 07 j 16:45	6°II14'23	41.81391 AU	max. Earth dist.	-1275 Jun 18 j 12:18	16°II54'51	39.84677 AU
conjunction	-1283 Jun 10 j 09:18	6°II18'40	0°-1'-10	conjunction	-1275 Jun 21 j 12:36	16°II59'56	3°10'29
minimum elong	-1283 Jun 10 j 09:18	6°II18'40	0°01'10	minimum elong	-1275 Jun 21 j 12:31	16°II59'56	3°10'30
behind sun begin	-1283 Jun 10 j 02:46	6°II18'15		retrograde	-1275 Oct 01 j 10:28	18°II50'48	
behind sun end	-1283 Jun 10 j 15:50	6°II19'04		opposition	-1275 Dec 19 j 18:28	17°II42'31	3°33'32
asc. node	-1283 Jun 28 j 11:35	6°II47'12		min. Earth dist.	-1275 Dec 22 j 10:25	17°II38'54	37.72488 AU
retrograde	-1283 Sep 20 j 07:19	8°II03'20		direct	-1274 Mar 11 j 09:56	16°II32'19	
opposition	-1283 Dec 09 j 06:11	6°II57'26	0°10'49	max. Earth dist.	-1274 Jun 20 j 05:01	18°II19'53	39.59691 AU
min. Earth dist.	-1283 Dec 11 j 16:12	6°II54'18	39.69341 AU	conjunction	-1274 Jun 23 j 06:11	18°II25'05	3°35'26
direct	-1282 Feb 28 j 22:30	5°II50'05		minimum elong	-1274 Jun 23 j 06:04	18°II25'04	3°35'28
max. Earth dist.	-1282 Jun 09 j 04:31	7°II31'12	41.57407 AU	retrograde	-1274 Oct 03 j 02:59	20°II16'53	
conjunction	-1282 Jun 11 j 23:27	7°II35'40	0°21'59	opposition	-1274 Dec 21 j 10:09	19°II08'19	3°59'59
minimum elong	-1282 Jun 11 j 23:26	7°II35'40	0°22'01	min. Earth dist.	-1274 Dec 24 j 03:49	19°II04'35	37.47534 AU
retrograde	-1282 Sep 21 j 21:46	9°II21'00		direct	-1273 Mar 12 j 23:29	17°II57'46	
opposition	-1282 Dec 10 j 18:22	8°II14'49	0°35'13	max. Earth dist.	-1273 Jun 21 j 22:33	19°II46'19	39.34561 AU
min. Earth dist.	-1282 Dec 13 j 05:41	8°II11'35	39.45217 AU	conjunction	-1273 Jun 25 j 00:05	19°II51'34	4°00'35
direct	-1281 Mar 02 j 11:38	7°II07'07		minimum elong	-1273 Jun 24 j 23:57	19°II51'33	4°00'36
max. Earth dist.	-1281 Jun 10 j 18:32	8°II48'57	41.33126 AU	retrograde	-1273 Oct 04 j 21:59	21°II44'20	
conjunction	-1281 Jun 13 j 13:56	8°II53'29	0°45'20	opposition	-1273 Dec 23 j 02:13	20°II35'27	4°26'38
minimum elong	-1281 Jun 13 j 13:55	8°II53'29	0°45'21	min. Earth dist.	-1273 Dec 25 j 19:52	20°II31'42	37.22418 AU
retrograde	-1281 Sep 23 j 10:02	10°II39'30		direct	-1272 Mar 13 j 14:28	19°II24'32	
opposition	-1281 Dec 12 j 07:00	9°II33'01	0°59'54	max. Earth dist.	-1272 Jun 22 j 14:57	21°II13'58	39.09230 AU
min. Earth dist.	-1281 Dec 14 j 19:35	9°II29'42	39.20834 AU	conjunction	-1272 Jun 25 j 18:35	21°II19'25	4°25'54
direct	-1280 Mar 03 j 01:13	8°II24'57		minimum elong	-1272 Jun 25 j 18:26	21°II19'25	4°25'55
max. Earth dist.	-1280 Jun 11 j 08:15	10°II07'28	41.08632 AU	retrograde	-1272 Oct 05 j 19:31	23°II13'09	
conjunction	-1280 Jun 14 j 04:40	10°II12'06	1°08'56	opposition	-1272 Dec 23 j 18:51	22°II03'57	4°53'30
minimum elong	-1280 Jun 14 j 04:37	10°II12'06	1°08'58	min. Earth dist.	-1272 Dec 26 j 14:22	22°II00'04	36.97115 AU
retrograde	-1280 Sep 24 j 00:06	11°II58'51		direct	-1271 Mar 15 j 04:27	20°II52'38	
opposition	-1280 Dec 12 j 19:43	10°II52'03	1°24'52	max. Earth dist.	-1271 Jun 24 j 10:08	22°II43'07	38.83699 AU
min. Earth dist.	-1280 Dec 15 j 08:27	10°II48'43	38.96283 AU	conjunction	-1271 Jun 27 j 13:45	22°II48'37	4°51'23
direct	-1279 Mar 04 j 13:15	9°II43'37		minimum elong	-1271 Jun 27 j 13:36	22°II48'36	4°51'24
max. Earth dist.	-1279 Jun 12 j 21:56	11°II26'50	40.83968 AU	retrograde	-1271 Oct 07 j 14:21	24°II43'19	



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 9

Attention, astronomical year style is used: The year -1271 in astronomical counting style is the year 1272 BCE in historical counting style.

opposition	-1271 Dec 25 j 12:04	23°II33'46	5°20'33	opposition	-1262 Jan 07 j 02:09	6°☾21'51	9°00'57
min. Earth dist.	-1271 Dec 28 j 07:52	23°II29'51	36.71611 AU	min. Earth dist.	-1262 Jan 10 j 01:30	6°☾17'31	34.67003 AU
direct	-1270 Mar 16 j 22:29	22°II22'03		direct	-1262 Mar 29 j 09:10	5°☾06'31	
max. Earth dist.	-1270 Jun 26 j 03:43	24°II13'27	38.57976 AU	max. Earth dist.	-1262 Jul 09 j 09:54	7°☾07'07	36.52051 AU
conjunction	-1270 Jun 29 j 09:18	24°II19'08	5°17'02	conjunction	-1262 Jul 12 j 18:05	7°☾13'26	8°44'44
minimum elong	-1270 Jun 29 j 09:07	24°II19'07	5°17'03	minimum elong	-1262 Jul 12 j 17:47	7°☾13'25	8°44'45
retrograde	-1270 Oct 09 j 11:15	26°II14'49		retrograde	-1262 Oct 22 j 22:59	9°☾18'03	
opposition	-1270 Dec 27 j 05:42	25°II04'54	5°47'47	opposition	-1261 Jan 09 j 00:59	8°☾05'02	9°28'32
min. Earth dist.	-1270 Dec 30 j 02:35	25°II00'54	36.45959 AU	min. Earth dist.	-1261 Jan 12 j 01:16	8°☾00'36	34.41979 AU
direct	-1269 Mar 18 j 16:48	23°II52'45		direct	-1261 Mar 31 j 07:19	6°☾49'16	
max. Earth dist.	-1269 Jun 27 j 23:42	25°II45'12	38.32103 AU	max. Earth dist.	-1261 Jul 11 j 10:38	8°☾51'09	36.26836 AU
conjunction	-1269 Jul 01 j 05:31	25°II50'57	5°42'48	conjunction	-1261 Jul 14 j 19:07	8°☾57'34	9°10'35
minimum elong	-1269 Jul 01 j 05:20	25°II50'57	5°42'50	minimum elong	-1261 Jul 14 j 18:49	8°☾57'33	9°10'37
retrograde	-1269 Oct 11 j 05:57	27°II47'39		retrograde	-1261 Oct 25 j 00:17	11°☾03'27	
opposition	-1269 Dec 29 j 00:04	26°II37'21	6°15'09	opposition	-1260 Jan 11 j 00:27	9°☾50'04	9°56'03
min. Earth dist.	-1269 Dec 31 j 22:00	26°II33'15	36.20197 AU	min. Earth dist.	-1260 Jan 14 j 00:16	9°☾45'38	34.17060 AU
direct	-1268 Mar 19 j 12:17	25°II24'45		direct	-1260 Apr 01 j 05:48	8°☾33'51	
max. Earth dist.	-1268 Jun 28 j 19:21	27°II18'13	38.06157 AU	max. Earth dist.	-1260 Jul 12 j 11:26	10°☾37'01	36.01681 AU
conjunction	-1268 Jul 02 j 01:57	27°II24'06	6°08'41	conjunction	-1260 Jul 15 j 20:51	10°☾43'34	9°36'19
minimum elong	-1268 Jul 02 j 01:45	27°II24'05	6°08'43	minimum elong	-1260 Jul 15 j 20:32	10°☾43'32	9°36'19
retrograde	-1268 Oct 12 j 02:37	29°II21'49		retrograde	-1260 Oct 26 j 01:59	12°☾50'44	
opposition	-1268 Dec 29 j 18:48	28°II11'08	6°42'39	opposition	-1259 Jan 12 j 00:51	11°☾36'57	10°23'25
min. Earth dist.	-1267 Jan 01 j 16:33	28°II07'01	35.94404 AU	min. Earth dist.	-1259 Jan 15 j 02:02	11°☾32'25	33.92205 AU
direct	-1267 Mar 21 j 06:25	26°II58'03		direct	-1259 Apr 03 j 03:18	10°☾20'17	
max. Earth dist.	-1267 Jun 30 j 15:36	28°II52'34	37.80180 AU	max. Earth dist.	-1259 Jul 14 j 14:35	12°☾24'51	35.76590 AU
conjunction	-1267 Jul 03 j 23:11	28°II58'34	6°34'40	conjunction	-1259 Jul 17 j 23:29	12°☾31'26	10°01'52
minimum elong	-1267 Jul 03 j 22:58	28°II58'33	6°34'41	minimum elong	-1259 Jul 17 j 23:09	12°☾31'24	10°01'54
retrograde	-1267 Aug 08 j 13:57	0°☾		retrograde	-1259 Oct 28 j 05:05	14°☾39'54	
opposition	-1267 Oct 13 j 22:29	0°☾57'21		opposition	-1258 Jan 14 j 01:49	13°☾25'43	10°50'38
min. Earth dist.	-1267 Dec 21 j 20:38	30°R II		min. Earth dist.	-1258 Jan 17 j 02:29	13°☾21'11	33.67420 AU
direct	-1267 Dec 31 j 14:10	29°II46'15	7°10'15	direct	-1258 Apr 05 j 03:17	12°☾08'34	
max. Earth dist.	-1266 Jan 03 j 13:22	29°II42'02	35.68637 AU	max. Earth dist.	-1258 Jul 16 j 16:32	14°☾14'25	35.51572 AU
conjunction	-1266 Mar 22 j 23:46	28°II32'43		conjunction	-1258 Jul 20 j 02:48	14°☾21'10	10°27'14
minimum elong	-1266 Jun 16 j 17:14	0°☾		minimum elong	-1258 Jul 20 j 02:27	14°☾21'08	10°27'14
retrograde	-1266 Jul 02 j 13:57	0°☾28'25	37.54265 AU	retrograde	-1258 Oct 30 j 10:13	16°☾30'57	
conjunction	-1266 Jul 05 j 20:58	0°☾34'25	7°00'41	opposition	-1257 Jan 16 j 03:44	15°☾16'20	11°17'37
minimum elong	-1266 Jul 05 j 20:43	0°☾34'24	7°00'42	min. Earth dist.	-1257 Jan 19 j 05:23	15°☾11'43	33.42751 AU
retrograde	-1266 Oct 15 j 20:54	2°☾34'17		direct	-1257 Apr 07 j 02:52	13°☾58'42	
opposition	-1265 Jan 02 j 10:12	1°☾22'48	7°37'55	max. Earth dist.	-1257 Jul 18 j 21:29	16°☾06'02	35.26679 AU
min. Earth dist.	-1265 Jan 05 j 08:43	1°☾18'35	35.42972 AU	conjunction	-1257 Jul 22 j 06:45	16°☾12'46	10°52'21
direct	-1265 Mar 24 j 18:49	0°☾08'47		minimum elong	-1257 Jul 22 j 06:24	16°☾12'44	10°52'22
max. Earth dist.	-1265 Jul 04 j 10:47	2°☾05'34	37.28465 AU	retrograde	-1257 Nov 01 j 15:21	18°☾23'53	
conjunction	-1265 Jul 07 j 19:06	2°☾11'44	7°26'44	opposition	-1256 Jan 18 j 06:24	17°☾08'50	11°44'21
minimum elong	-1265 Jul 07 j 18:51	2°☾11'42	7°26'46	min. Earth dist.	-1256 Jan 21 j 07:50	17°☾04'11	33.18234 AU
retrograde	-1265 Oct 17 j 21:09	4°☾12'44		direct	-1256 Apr 08 j 06:50	15°☾50'42	
opposition	-1264 Jan 04 j 06:54	3°☾00'50	8°05'36	max. Earth dist.	-1256 Jul 20 j 01:13	17°☾59'21	35.01980 AU
min. Earth dist.	-1264 Jan 07 j 06:19	2°☾56'33	35.17472 AU	conjunction	-1256 Jul 23 j 11:22	18°☾06'13	11°17'09
direct	-1264 Mar 25 j 13:04	1°☾46'22		minimum elong	-1256 Jul 23 j 11:00	18°☾06'11	11°17'09
max. Earth dist.	-1264 Jul 05 j 10:42	3°☾44'27	37.02833 AU	retrograde	-1256 Nov 02 j 22:42	20°☾18'40	
conjunction	-1264 Jul 08 j 18:06	3°☾50'36	7°52'47	opposition	-1255 Jan 19 j 09:36	19°☾03'11	12°10'44
minimum elong	-1264 Jul 08 j 17:50	3°☾50'34	7°52'47	min. Earth dist.	-1255 Jan 22 j 10:53	18°☾58'31	32.93964 AU
retrograde	-1264 Oct 18 j 20:30	5°☾52'46		direct	-1255 Apr 10 j 09:58	17°☾44'32	
opposition	-1263 Jan 05 j 04:11	4°☾40'29	8°33'17	max. Earth dist.	-1255 Jul 22 j 07:36	19°☾54'41	34.77537 AU
min. Earth dist.	-1263 Jan 08 j 03:22	4°☾36'11	34.92147 AU	conjunction	-1255 Jul 25 j 16:55	20°☾01'33	11°41'35
direct	-1263 Mar 27 j 11:05	3°☾25'35		minimum elong	-1255 Jul 25 j 16:32	20°☾01'31	11°41'37
max. Earth dist.	-1263 Jul 07 j 09:14	5°☾24'51	36.77378 AU	retrograde	-1255 Nov 05 j 03:31	22°☾15'22	
conjunction	-1263 Jul 10 j 17:40	5°☾31'08	8°18'47	opposition	-1254 Jan 21 j 13:53	20°☾59'25	12°36'42
minimum elong	-1263 Jul 10 j 17:24	5°☾31'07	8°18'49	min. Earth dist.	-1254 Jan 24 j 15:28	20°☾54'42	32.69994 AU
retrograde	-1263 Oct 20 j 22:36	7°☾34'30		direct	-1254 Apr 12 j 13:51	19°☾40'16	



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 10

Attention, astronomical year style is used: The year -1254 in astronomical counting style is the year 1255 BCE in historical counting style.

max. Earth dist.	-1254 Jul 24 j 14:05	21° $\mathring{S}$ 51'53	34.53453 AU	min. Earth dist.	-1246 Feb 10 j 02:23	7° $\mathring{N}$ 38'53	30.95889 AU
				direct	-1246 Apr 28 j 20:28	6° $\mathring{N}$ 20'45	
conjunction	-1254 Jul 27 j 22:55	21° $\mathring{S}$ 58'47	12°05'35	max. Earth dist.	-1246 Aug 11 j 03:12	8° $\mathring{N}$ 44'45	32.78889 AU
minimum elong	-1254 Jul 27 j 22:32	21° $\mathring{S}$ 58'45	12°05'36				
retrograde	-1254 Nov 07 j 10:31	24° $\mathring{S}$ 13'57		conjunction	-1246 Aug 14 j 04:25	8° $\mathring{N}$ 51'31	14°53'32
opposition	-1253 Jan 23 j 18:52	22° $\mathring{S}$ 57'34	13°02'12	minimum elong	-1246 Aug 14 j 04:02	8° $\mathring{N}$ 51'29	14°53'32
min. Earth dist.	-1253 Jan 26 j 19:09	22° $\mathring{S}$ 52'54	32.46432 AU	retrograde	-1246 Nov 25 j 01:19	11° $\mathring{N}$ 18'00	
direct	-1253 Apr 14 j 18:27	21° $\mathring{S}$ 37'56		opposition	-1245 Feb 09 j 19:30	9° $\mathring{N}$ 58'28	15°59'56
max. Earth dist.	-1253 Jul 26 j 21:26	23° $\mathring{S}$ 51'01	34.29798 AU	min. Earth dist.	-1245 Feb 12 j 14:41	9° $\mathring{N}$ 53'56	30.76400 AU
				direct	-1245 May 01 j 07:37	8° $\mathring{N}$ 35'25	
conjunction	-1253 Jul 30 j 05:50	23° $\mathring{S}$ 57'58	12°29'04	max. Earth dist.	-1245 Aug 13 j 17:39	11° $\mathring{N}$ 00'53	32.59403 AU
minimum elong	-1253 Jul 30 j 05:26	23° $\mathring{S}$ 57'56	12°29'06				
retrograde	-1253 Nov 09 j 17:42	26° $\mathring{S}$ 14'31		conjunction	-1245 Aug 16 j 17:41	11° $\mathring{N}$ 07'36	15°10'32
opposition	-1252 Jan 26 j 00:50	24° $\mathring{S}$ 57'43	13°27'08	minimum elong	-1245 Aug 16 j 17:20	11° $\mathring{N}$ 07'34	15°10'33
min. Earth dist.	-1252 Jan 29 j 01:27	24° $\mathring{S}$ 52'59	32.23351 AU	retrograde	-1245 Nov 27 j 16:37	13° $\mathring{N}$ 35'24	
direct	-1252 Apr 15 j 21:07	23° $\mathring{S}$ 37'36		opposition	-1244 Feb 12 j 08:33	12° $\mathring{N}$ 15'29	16°17'46
max. Earth dist.	-1252 Jul 28 j 06:31	25° $\mathring{S}$ 52'16	34.06667 AU	min. Earth dist.	-1244 Feb 15 j 01:48	12° $\mathring{N}$ 11'03	30.57475 AU
				direct	-1244 May 02 j 20:38	10° $\mathring{N}$ 52'01	
conjunction	-1252 Jul 31 j 13:22	25° $\mathring{S}$ 59'09	12°51'59	max. Earth dist.	-1244 Aug 15 j 08:49	13° $\mathring{N}$ 18'56	32.40506 AU
minimum elong	-1252 Jul 31 j 12:58	25° $\mathring{S}$ 59'07	12°51'59				
retrograde	-1252 Nov 11 j 01:28	28° $\mathring{S}$ 17'07		conjunction	-1244 Aug 18 j 07:44	13° $\mathring{N}$ 25'36	15°26'23
opposition	-1251 Jan 27 j 07:33	26° $\mathring{S}$ 59'54	13°51'26	minimum elong	-1244 Aug 18 j 07:23	13° $\mathring{N}$ 25'34	15°26'23
min. Earth dist.	-1251 Jan 30 j 06:21	26° $\mathring{S}$ 55'16	32.00799 AU		-1244 Oct 02 j 10:18	15° $\mathring{N}$	
direct	-1251 Apr 18 j 02:58	25° $\mathring{S}$ 39'20		retrograde	-1244 Nov 29 j 07:30	15° $\mathring{N}$ 54'42	
max. Earth dist.	-1251 Jul 30 j 14:57	27° $\mathring{S}$ 55'29	33.84069 AU		-1243 Jan 29 j 00:55	15° $\mathring{R}$ $\mathring{N}$	
				opposition	-1243 Feb 13 j 22:39	14° $\mathring{N}$ 34'24	16°34'22
conjunction	-1251 Aug 02 j 21:50	28° $\mathring{S}$ 02'26	13°14'14	min. Earth dist.	-1243 Feb 16 j 15:41	14° $\mathring{N}$ 29'57	30.39159 AU
minimum elong	-1251 Aug 02 j 21:26	28° $\mathring{S}$ 02'24	13°14'15	direct	-1243 May 05 j 08:16	13° $\mathring{N}$ 10'31	
	-1251 Oct 07 j 15:05	0° $\mathring{N}$			-1243 Jul 31 j 15:39	15° $\mathring{N}$	
retrograde	-1251 Nov 13 j 10:46	0° $\mathring{N}$ 21'51		max. Earth dist.	-1243 Aug 18 j 01:46	15° $\mathring{N}$ 38'56	32.22281 AU
	-1251 Dec 21 j 04:14	30° $\mathring{R}$ $\mathring{S}$					
opposition	-1250 Jan 29 j 15:09	29° $\mathring{S}$ 04'14	14°15'02	conjunction	-1243 Aug 20 j 22:27	15° $\mathring{N}$ 45'26	15°41'01
min. Earth dist.	-1250 Feb 01 j 14:06	28° $\mathring{S}$ 59'34	31.78796 AU	minimum elong	-1243 Aug 20 j 22:08	15° $\mathring{N}$ 45'25	15°41'02
direct	-1250 Apr 20 j 07:40	27° $\mathring{S}$ 43'14		retrograde	-1243 Dec 01 j 22:14	18° $\mathring{N}$ 15'47	
	-1250 Aug 01 j 14:19	0° $\mathring{N}$		opposition	-1242 Feb 16 j 13:26	16° $\mathring{N}$ 55'07	16°49'36
max. Earth dist.	-1250 Aug 02 j 02:26	0° $\mathring{N}$ 01'05	33.62020 AU	min. Earth dist.	-1242 Feb 19 j 04:01	16° $\mathring{N}$ 50'49	30.21530 AU
				direct	-1242 May 07 j 23:08	15° $\mathring{N}$ 30'51	
conjunction	-1250 Aug 05 j 07:10	0° $\mathring{N}$ 07'54	13°35'46	max. Earth dist.	-1242 Aug 20 j 18:12	18° $\mathring{N}$ 00'36	32.04800 AU
minimum elong	-1250 Aug 05 j 06:46	0° $\mathring{N}$ 07'52	13°35'47				
retrograde	-1250 Nov 15 j 20:52	2° $\mathring{N}$ 28'45		conjunction	-1242 Aug 23 j 13:47	18° $\mathring{N}$ 07'04	15°54'19
opposition	-1249 Jan 31 j 23:47	1° $\mathring{N}$ 10'45	14°37'50	minimum elong	-1242 Aug 23 j 13:28	18° $\mathring{N}$ 07'02	15°54'19
min. Earth dist.	-1249 Feb 03 j 21:24	1° $\mathring{N}$ 06'09	31.57320 AU	retrograde	-1242 Dec 04 j 14:00	20° $\mathring{N}$ 38'38	
	-1249 Mar 27 j 02:00	30° $\mathring{R}$ $\mathring{S}$		opposition	-1241 Feb 19 j 05:13	19° $\mathring{N}$ 17'35	17°03'23
direct	-1249 Apr 22 j 15:21	29° $\mathring{S}$ 49'21		min. Earth dist.	-1241 Feb 21 j 18:48	19° $\mathring{N}$ 13'20	30.04690 AU
	-1249 May 18 j 22:49	0° $\mathring{N}$		direct	-1241 May 10 j 12:14	17° $\mathring{N}$ 52'57	
max. Earth dist.	-1249 Aug 04 j 12:15	2° $\mathring{N}$ 08'40	33.40494 AU	max. Earth dist.	-1241 Aug 23 j 13:23	20° $\mathring{N}$ 24'13	31.88172 AU
conjunction	-1249 Aug 07 j 17:03	2° $\mathring{N}$ 15'34	13°56'32	conjunction	-1241 Aug 26 j 05:38	20° $\mathring{N}$ 30'24	16°06'12
minimum elong	-1249 Aug 07 j 16:40	2° $\mathring{N}$ 15'32	13°56'34	minimum elong	-1241 Aug 26 j 05:22	20° $\mathring{N}$ 30'23	16°06'13
retrograde	-1249 Nov 18 j 09:31	4° $\mathring{N}$ 37'52		retrograde	-1241 Dec 07 j 06:11	23° $\mathring{N}$ 03'09	
opposition	-1248 Feb 03 j 09:17	3° $\mathring{N}$ 19'29	14°59'48	opposition	-1240 Feb 21 j 21:44	21° $\mathring{N}$ 41'46	17°15'36
min. Earth dist.	-1248 Feb 06 j 06:29	3° $\mathring{N}$ 14'54	31.36362 AU	min. Earth dist.	-1240 Feb 24 j 08:47	21° $\mathring{N}$ 37'41	29.88708 AU
direct	-1248 Apr 23 j 22:13	1° $\mathring{N}$ 57'40		direct	-1240 May 12 j 03:53	20° $\mathring{N}$ 16'49	
max. Earth dist.	-1248 Aug 06 j 01:10	4° $\mathring{N}$ 18'38	33.19463 AU	max. Earth dist.	-1240 Aug 25 j 07:14	22° $\mathring{N}$ 49'21	31.72471 AU
conjunction	-1248 Aug 09 j 04:04	4° $\mathring{N}$ 25'25	14°16'28	conjunction	-1240 Aug 27 j 22:08	22° $\mathring{N}$ 55'27	16°16'35
minimum elong	-1248 Aug 09 j 03:41	4° $\mathring{N}$ 25'23	14°16'28	minimum elong	-1240 Aug 27 j 21:53	22° $\mathring{N}$ 55'26	16°16'35
retrograde	-1248 Nov 19 j 21:52	6° $\mathring{N}$ 49'08		retrograde	-1240 Dec 09 j 00:23	25° $\mathring{N}$ 29'22	
opposition	-1247 Feb 04 j 19:41	5° $\mathring{N}$ 30'23	15°20'51	opposition	-1239 Feb 23 j 14:51	24° $\mathring{N}$ 07'40	17°26'10
min. Earth dist.	-1247 Feb 07 j 16:19	5° $\mathring{N}$ 25'48	31.15878 AU	min. Earth dist.	-1239 Feb 26 j 00:01	24° $\mathring{N}$ 03'42	29.73672 AU
direct	-1247 Apr 26 j 09:13	4° $\mathring{N}$ 08'09		direct	-1239 May 14 j 18:34	22° $\mathring{N}$ 42'26	
max. Earth dist.	-1247 Aug 08 j 13:02	6° $\mathring{N}$ 30'35	32.98929 AU	max. Earth dist.	-1239 Aug 28 j 04:10	25° $\mathring{N}$ 16'26	31.57754 AU
conjunction	-1247 Aug 11 j 15:48	6° $\mathring{N}$ 37'26	14°35'29	conjunction	-1239 Aug 30 j 15:27	25° $\mathring{N}$ 22'13	16°25'23
minimum elong	-1247 Aug 11 j 15:26	6° $\mathring{N}$ 37'24	14°35'30	minimum elong	-1239 Aug 30 j 15:15	25° $\mathring{N}$ 22'12	16°25'24
retrograde	-1247 Nov 22 j 12:38	9° $\mathring{N}$ 02'32		retrograde	-1239 Dec 11 j 18:10	27° $\mathring{N}$ 57'13	
opposition	-1246 Feb 07 j 07:03	7° $\mathring{N}$ 43'24	15°40'56	opposition	-1238 Feb 26 j 08:59	26° $\mathring{N}$ 35'17	17°34'59



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 11

Attention, astronomical year style is used: The year -1238 in astronomical counting style is the year 1239 BCE in historical counting style.

min. Earth dist.	-1238 Feb 28 j 15:57	26° $\mathring{O}$ 31'27	29.59595 AU	min. Earth dist.	-1230 Mar 20 j 19:40	17° $\mathring{M}$ 02'48	28.80655 AU
direct	-1238 May 17 j 12:41	25° $\mathring{O}$ 09'50		direct	-1230 Jun 07 j 06:07	15° $\mathring{M}$ 38'58	
max. Earth dist.	-1238 Aug 30 j 23:22	27° $\mathring{O}$ 45'01	31.44046 AU	max. Earth dist.	-1230 Sep 21 j 11:30	18° $\mathring{M}$ 21'11	30.68985 AU
conjunction	-1238 Sep 02 j 09:01	27° $\mathring{O}$ 50'41	16°32'32	conjunction	-1230 Sep 22 j 21:55	18° $\mathring{M}$ 24'41	16°25'13
minimum elong	-1238 Sep 02 j 08:50	27° $\mathring{O}$ 50'40	16°32'32	minimum elong	-1230 Sep 22 j 22:01	18° $\mathring{M}$ 24'41	16°25'13
	-1238 Nov 05 j 14:29	0° $\mathring{M}$		retrograde	-1229 Jan 04 j 11:52	21° $\mathring{M}$ 05'48	
retrograde	-1238 Dec 14 j 14:25	0° $\mathring{M}$ 26'45		opposition	-1229 Mar 22 j 06:44	19° $\mathring{M}$ 42'23	17°28'09
	-1237 Jan 23 j 21:44	30° $\mathring{R}$ $\mathring{O}$		min. Earth dist.	-1229 Mar 23 j 14:57	19° $\mathring{M}$ 40'07	28.75089 AU
opposition	-1237 Mar 01 j 03:44	29° $\mathring{O}$ 04'34	17°42'01	direct	-1229 Jun 10 j 05:05	18° $\mathring{M}$ 16'00	
min. Earth dist.	-1237 Mar 03 j 07:56	29° $\mathring{O}$ 00'56	29.46501 AU	max. Earth dist.	-1229 Sep 24 j 10:16	20° $\mathring{M}$ 58'30	30.64138 AU
direct	-1237 May 20 j 06:15	27° $\mathring{O}$ 38'56					
	-1237 Aug 27 j 08:29	0° $\mathring{M}$		conjunction	-1229 Sep 25 j 18:12	21° $\mathring{M}$ 01'45	16°15'49
max. Earth dist.	-1237 Sep 02 j 21:15	0° $\mathring{M}$ 15'27	31.31325 AU	minimum elong	-1229 Sep 25 j 18:23	21° $\mathring{M}$ 01'46	16°15'49
				retrograde	-1228 Jan 07 j 08:51	23° $\mathring{M}$ 43'03	
conjunction	-1237 Sep 05 j 03:24	0° $\mathring{M}$ 20'48	16°37'58	opposition	-1228 Mar 24 j 05:26	22° $\mathring{M}$ 19'31	17°17'12
minimum elong	-1237 Sep 05 j 03:16	0° $\mathring{M}$ 20'47	16°37'59	min. Earth dist.	-1228 Mar 25 j 10:36	22° $\mathring{M}$ 17'27	28.70651 AU
retrograde	-1237 Dec 17 j 09:32	2° $\mathring{M}$ 57'50		direct	-1228 Jun 12 j 02:09	20° $\mathring{M}$ 53'08	
opposition	-1236 Mar 02 j 23:14	1° $\mathring{M}$ 35'28	17°47'10	max. Earth dist.	-1228 Sep 26 j 11:11	23° $\mathring{M}$ 36'01	30.60477 AU
min. Earth dist.	-1236 Mar 05 j 01:53	1° $\mathring{M}$ 31'56	29.34351 AU				
direct	-1236 May 22 j 00:19	0° $\mathring{M}$ 09'42		conjunction	-1228 Sep 27 j 14:34	23° $\mathring{M}$ 38'49	16°04'29
max. Earth dist.	-1236 Sep 04 j 17:57	2° $\mathring{M}$ 47'16	31.19578 AU	minimum elong	-1228 Sep 27 j 14:45	23° $\mathring{M}$ 38'50	16°04'29
				retrograde	-1227 Jan 09 j 03:46	26° $\mathring{M}$ 20'09	
conjunction	-1236 Sep 06 j 22:08	2° $\mathring{M}$ 52'27	16°41'39	opposition	-1227 Mar 27 j 04:25	24° $\mathring{M}$ 56'34	17°04'10
minimum elong	-1236 Sep 06 j 22:01	2° $\mathring{M}$ 52'27	16°41'40	min. Earth dist.	-1227 Mar 28 j 06:16	24° $\mathring{M}$ 54'45	28.67381 AU
retrograde	-1236 Dec 19 j 07:44	5° $\mathring{M}$ 30'24		direct	-1227 Jun 15 j 01:50	23° $\mathring{M}$ 30'14	
opposition	-1235 Mar 05 j 19:19	4° $\mathring{M}$ 07'51	17°50'26	max. Earth dist.	-1227 Sep 29 j 09:50	26° $\mathring{M}$ 13'13	30.58048 AU
min. Earth dist.	-1235 Mar 07 j 18:51	4° $\mathring{M}$ 04'31	29.23125 AU				
direct	-1235 May 24 j 20:52	2° $\mathring{M}$ 41'56		conjunction	-1227 Sep 30 j 10:36	26° $\mathring{M}$ 15'44	15°51'13
max. Earth dist.	-1235 Sep 07 j 16:19	5° $\mathring{M}$ 20'36	31.08758 AU	minimum elong	-1227 Sep 30 j 10:51	26° $\mathring{M}$ 15'45	15°51'12
				retrograde	-1226 Jan 12 j 01:15	28° $\mathring{M}$ 57'03	
conjunction	-1235 Sep 09 j 17:28	5° $\mathring{M}$ 25'31	16°43'33	opposition	-1226 Mar 30 j 03:21	27° $\mathring{M}$ 33'27	16°49'03
minimum elong	-1235 Sep 09 j 17:25	5° $\mathring{M}$ 25'31	16°43'34	min. Earth dist.	-1226 Mar 31 j 01:11	27° $\mathring{M}$ 31'54	28.65338 AU
retrograde	-1235 Dec 22 j 03:28	8° $\mathring{M}$ 04'16		direct	-1226 Jun 17 j 23:39	26° $\mathring{M}$ 07'12	
opposition	-1234 Mar 08 j 16:13	6° $\mathring{M}$ 41'33	17°51'45	max. Earth dist.	-1226 Oct 02 j 10:39	28° $\mathring{M}$ 50'23	30.56876 AU
min. Earth dist.	-1234 Mar 10 j 14:29	6° $\mathring{M}$ 38'18	29.12794 AU				
direct	-1234 May 27 j 16:33	5° $\mathring{M}$ 15'32		conjunction	-1226 Oct 03 j 06:43	28° $\mathring{M}$ 52'26	15°36'02
max. Earth dist.	-1234 Sep 10 j 14:31	7° $\mathring{M}$ 55'06	30.98883 AU	minimum elong	-1226 Oct 03 j 06:58	28° $\mathring{M}$ 52'28	15°36'03
					-1226 Oct 31 j 18:49	0° $\mathring{O}$	
conjunction	-1234 Sep 12 j 13:08	7° $\mathring{M}$ 59'47	16°43'38	retrograde	-1225 Jan 14 j 20:39	1° $\mathring{O}$ 33'38	
minimum elong	-1234 Sep 12 j 13:04	7° $\mathring{M}$ 59'47	16°43'38	opposition	-1225 Apr 02 j 02:21	0° $\mathring{O}$ 10'04	16°31'53
retrograde	-1234 Dec 25 j 01:09	10° $\mathring{M}$ 39'14		min. Earth dist.	-1225 Apr 02 j 21:23	0° $\mathring{O}$ 08'43	28.64512 AU
opposition	-1233 Mar 11 j 13:33	9° $\mathring{M}$ 16'22	17°51'06		-1225 Apr 08 j 01:34	30° $\mathring{R}$ $\mathring{M}$	
min. Earth dist.	-1233 Mar 13 j 08:17	9° $\mathring{M}$ 13'21	29.03367 AU	direct	-1225 Jun 20 j 21:41	28° $\mathring{M}$ 43'58	
direct	-1233 May 30 j 14:04	7° $\mathring{M}$ 50'15			-1225 Aug 28 j 14:04	0° $\mathring{O}$	
max. Earth dist.	-1233 Sep 13 j 12:59	10° $\mathring{M}$ 30'37	30.89933 AU	max. Earth dist.	-1225 Oct 05 j 09:05	1° $\mathring{O}$ 27'04	30.56947 AU
conjunction	-1233 Sep 15 j 09:01	10° $\mathring{M}$ 35'04	16°41'52	conjunction	-1225 Oct 06 j 02:22	1° $\mathring{O}$ 28'49	15°19'01
minimum elong	-1233 Sep 15 j 09:02	10° $\mathring{M}$ 35'04	16°41'52	minimum elong	-1225 Oct 06 j 02:40	1° $\mathring{O}$ 28'51	15°19'00
retrograde	-1233 Dec 27 j 22:30	13° $\mathring{M}$ 15'06		retrograde	-1224 Jan 17 j 18:13	4° $\mathring{O}$ 09'49	
opposition	-1232 Mar 13 j 11:24	11° $\mathring{M}$ 52'05	17°48'27	opposition	-1224 Apr 04 j 01:06	2° $\mathring{O}$ 46'19	16°12'45
min. Earth dist.	-1232 Mar 15 j 04:39	11° $\mathring{M}$ 49'10	28.94849 AU	min. Earth dist.	-1224 Apr 04 j 15:49	2° $\mathring{O}$ 45'17	28.64880 AU
direct	-1232 Jun 01 j 10:20	10° $\mathring{M}$ 25'52		direct	-1224 Jun 22 j 21:06	1° $\mathring{O}$ 20'25	
max. Earth dist.	-1232 Sep 15 j 12:23	13° $\mathring{M}$ 06'59	30.81947 AU				
				conjunction	-1224 Oct 07 j 22:00	4° $\mathring{O}$ 04'48	15°00'12
conjunction	-1232 Sep 17 j 05:15	13° $\mathring{M}$ 11'07	16°38'14	minimum elong	-1224 Oct 07 j 22:19	4° $\mathring{O}$ 04'50	15°00'12
minimum elong	-1232 Sep 17 j 05:17	13° $\mathring{M}$ 11'07	16°38'13	max. Earth dist.	-1224 Oct 07 j 09:02	4° $\mathring{O}$ 03'29	30.58195 AU
retrograde	-1232 Dec 29 j 19:19	15° $\mathring{M}$ 51'38		retrograde	-1223 Jan 19 j 13:28	6° $\mathring{O}$ 45'30	
opposition	-1231 Mar 16 j 09:26	14° $\mathring{M}$ 28'28	17°43'45	opposition	-1223 Apr 06 j 23:47	5° $\mathring{O}$ 22'06	15°51'44
min. Earth dist.	-1231 Mar 17 j 23:11	14° $\mathring{M}$ 25'48	28.87258 AU	min. Earth dist.	-1223 Apr 07 j 12:14	5° $\mathring{O}$ 21'14	28.66381 AU
direct	-1231 Jun 04 j 09:01	13° $\mathring{M}$ 02'11		direct	-1223 Jun 25 j 19:26	3° $\mathring{O}$ 56'25	
max. Earth dist.	-1231 Sep 18 j 11:05	15° $\mathring{M}$ 43'49	30.74940 AU				
				conjunction	-1223 Oct 10 j 17:15	6° $\mathring{O}$ 40'14	14°39'41
conjunction	-1231 Sep 20 j 01:37	15° $\mathring{M}$ 47'44	16°32'41	minimum elong	-1223 Oct 10 j 17:36	6° $\mathring{O}$ 40'16	14°39'40
minimum elong	-1231 Sep 20 j 01:42	15° $\mathring{M}$ 47'45	16°32'41	max. Earth dist.	-1223 Oct 10 j 07:11	6° $\mathring{O}$ 39'13	30.60588 AU
retrograde	-1230 Jan 01 j 15:30	18° $\mathring{M}$ 28'37		retrograde	-1222 Jan 22 j 10:33	9° $\mathring{O}$ 20'33	
opposition	-1230 Mar 19 j 07:59	17° $\mathring{M}$ 05'19	17°36'59	opposition	-1222 Apr 09 j 22:17	7° $\mathring{O}$ 57'16	15°28'54



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 12

Attention, astronomical year style is used: The year -1222 in astronomical counting style is the year 1223 BCE in historical counting style.

min. Earth dist.	-1222 Apr 10 j 06:19	7° <u>♄</u> 56'43	28.68977 AU	conjunction	-1214 Nov 02 j 00:14	29° <u>♄</u> 08'44	10°32'08
direct	-1222 Jun 28 j 18:34	6° <u>♄</u> 31'50		minimum elong	-1214 Nov 02 j 00:37	29° <u>♄</u> 08'47	10°32'08
				max. Earth dist.	-1214 Nov 02 j 19:26	29° <u>♄</u> 10'36	31.28432 AU
conjunction	-1222 Oct 13 j 12:09	9° <u>♄</u> 14'58	14°17'32		-1214 Nov 24 j 10:07	0° <u>♄</u>	
minimum elong	-1222 Oct 13 j 12:30	9° <u>♄</u> 15'01	14°17'32	retrograde	-1213 Feb 13 j 16:44	1° <u>♄</u> 41'54	
max. Earth dist.	-1222 Oct 13 j 05:44	9° <u>♄</u> 14'20	30.64056 AU	opposition	-1213 May 03 j 12:39	0° <u>♄</u> 20'12	10°57'37
retrograde	-1221 Jan 25 j 06:10	11° <u>♄</u> 54'49		min. Earth dist.	-1213 May 02 j 15:17	0° <u>♄</u> 21'38	29.38053 AU
opposition	-1221 Apr 12 j 20:40	10° <u>♄</u> 31'40	15°04'21		-1213 May 16 j 03:49	30° <u>♄</u>	
min. Earth dist.	-1221 Apr 13 j 02:31	10° <u>♄</u> 31'15	28.72620 AU	direct	-1213 Jul 22 j 12:59	28° <u>♄</u> 57'26	
direct	-1221 Jul 01 j 16:50	9° <u>♄</u> 06'29			-1213 Sep 23 j 12:41	0° <u>♄</u>	
conjunction	-1221 Oct 16 j 06:44	11° <u>♄</u> 48'51	13°53'51	conjunction	-1213 Nov 04 j 13:52	1° <u>♄</u> 30'52	9°59'16
minimum elong	-1221 Oct 16 j 07:07	11° <u>♄</u> 48'54	13°53'50	minimum elong	-1213 Nov 04 j 14:14	1° <u>♄</u> 30'54	9°59'15
max. Earth dist.	-1221 Oct 16 j 03:29	11° <u>♄</u> 48'32	30.68574 AU	max. Earth dist.	-1213 Nov 05 j 13:12	1° <u>♄</u> 33'07	31.41215 AU
retrograde	-1220 Jan 28 j 02:03	14° <u>♄</u> 28'06		retrograde	-1212 Feb 16 j 05:22	4° <u>♄</u> 02'59	
opposition	-1220 Apr 14 j 18:21	13° <u>♄</u> 05'06	14°38'11	min. Earth dist.	-1212 May 04 j 06:09	2° <u>♄</u> 43'08	29.50986 AU
min. Earth dist.	-1220 Apr 14 j 20:13	13° <u>♄</u> 04'59	28.77264 AU	opposition	-1212 May 05 j 05:45	2° <u>♄</u> 41'33	10°21'58
direct	-1220 Jul 03 j 16:37	11° <u>♄</u> 40'11		direct	-1212 Jul 24 j 05:55	1° <u>♄</u> 19'12	
conjunction	-1220 Oct 18 j 00:53	14° <u>♄</u> 21'42	13°28'42	conjunction	-1212 Nov 06 j 02:43	3° <u>♄</u> 51'19	9°25'41
minimum elong	-1220 Oct 18 j 01:16	14° <u>♄</u> 21'45	13°28'42	minimum elong	-1212 Nov 06 j 03:05	3° <u>♄</u> 51'21	9°25'41
max. Earth dist.	-1220 Oct 18 j 00:30	14° <u>♄</u> 21'40	30.74083 AU	max. Earth dist.	-1212 Nov 07 j 04:29	3° <u>♄</u> 53'47	31.55016 AU
retrograde	-1219 Jan 29 j 19:53	17° <u>♄</u> 00'18		retrograde	-1211 Feb 17 j 19:11	6° <u>♄</u> 22'22	
opposition	-1219 Apr 17 j 15:55	15° <u>♄</u> 37'27	14°10'29	opposition	-1211 May 07 j 22:10	5° <u>♄</u> 01'15	9°45'37
min. Earth dist.	-1219 Apr 17 j 15:24	15° <u>♄</u> 37'29	28.82893 AU	min. Earth dist.	-1211 May 06 j 18:28	5° <u>♄</u> 03'05	29.64905 AU
direct	-1219 Jul 06 j 13:22	14° <u>♄</u> 12'48		direct	-1211 Jul 26 j 22:14	3° <u>♄</u> 39'18	
conjunction	-1219 Oct 20 j 18:28	16° <u>♄</u> 53'21	13°02'11	conjunction	-1211 Nov 08 j 14:49	6° <u>♄</u> 10'06	8°51'31
minimum elong	-1219 Oct 20 j 18:52	16° <u>♄</u> 53'23	13°02'10	minimum elong	-1211 Nov 08 j 15:09	6° <u>♄</u> 10'08	8°51'29
max. Earth dist.	-1219 Oct 20 j 21:47	16° <u>♄</u> 53'41	30.80584 AU	max. Earth dist.	-1211 Nov 09 j 19:55	6° <u>♄</u> 12'52	31.69741 AU
retrograde	-1218 Feb 01 j 13:28	19° <u>♄</u> 31'11		retrograde	-1210 Feb 20 j 07:48	8° <u>♄</u> 40'04	
opposition	-1218 Apr 20 j 12:55	18° <u>♄</u> 08'29	13°41'21	min. Earth dist.	-1210 May 09 j 08:22	7° <u>♄</u> 21'13	29.79744 AU
min. Earth dist.	-1218 Apr 20 j 08:46	18° <u>♄</u> 08'47	28.89485 AU	opposition	-1210 May 10 j 14:07	7° <u>♄</u> 19'15	9°08'41
direct	-1218 Jul 09 j 12:30	16° <u>♄</u> 44'07		direct	-1210 Jul 29 j 14:23	5° <u>♄</u> 57'44	
conjunction	-1218 Oct 23 j 11:23	19° <u>♄</u> 23'37	12°34'23	conjunction	-1210 Nov 11 j 02:23	8° <u>♄</u> 27'11	8°16'50
minimum elong	-1218 Oct 23 j 11:47	19° <u>♄</u> 23'40	12°34'24	minimum elong	-1210 Nov 11 j 02:42	8° <u>♄</u> 27'13	8°16'49
max. Earth dist.	-1218 Oct 23 j 17:09	19° <u>♄</u> 24'12	30.88062 AU	max. Earth dist.	-1210 Nov 12 j 10:14	8° <u>♄</u> 30'12	31.85336 AU
retrograde	-1217 Feb 04 j 07:04	22° <u>♄</u> 00'38		retrograde	-1209 Feb 22 j 20:40	10° <u>♄</u> 56'02	
opposition	-1217 Apr 23 j 09:19	20° <u>♄</u> 38'05	13°10'53	min. Earth dist.	-1209 May 11 j 20:02	9° <u>♄</u> 37'42	29.95413 AU
min. Earth dist.	-1217 Apr 23 j 02:04	20° <u>♄</u> 38'35	28.97084 AU	opposition	-1209 May 13 j 05:04	9° <u>♄</u> 35'32	8°31'17
direct	-1217 Jul 12 j 08:21	19° <u>♄</u> 14'00		direct	-1209 Aug 01 j 07:37	8° <u>♄</u> 14'26	
conjunction	-1217 Oct 26 j 03:42	21° <u>♄</u> 52'22	12°05'24	conjunction	-1209 Nov 13 j 13:11	10° <u>♄</u> 42'32	7°41'45
minimum elong	-1217 Oct 26 j 04:06	21° <u>♄</u> 52'25	12°05'23	minimum elong	-1209 Nov 13 j 13:29	10° <u>♄</u> 42'34	7°41'43
max. Earth dist.	-1217 Oct 26 j 13:39	21° <u>♄</u> 53'21	30.96558 AU	max. Earth dist.	-1209 Nov 14 j 23:16	10° <u>♄</u> 45'44	32.01696 AU
retrograde	-1216 Feb 06 j 21:12	24° <u>♄</u> 28'29		retrograde	-1208 Feb 25 j 08:09	13° <u>♄</u> 10'15	
opposition	-1216 Apr 25 j 05:07	23° <u>♄</u> 06'07	12°39'11	min. Earth dist.	-1208 May 13 j 08:08	11° <u>♄</u> 52'22	30.11846 AU
min. Earth dist.	-1216 Apr 24 j 18:46	23° <u>♄</u> 06'49	29.05695 AU	opposition	-1208 May 14 j 19:28	11° <u>♄</u> 50'03	7°53'32
direct	-1216 Jul 14 j 06:00	21° <u>♄</u> 42'19		direct	-1208 Aug 02 j 21:45	10° <u>♄</u> 29'23	
conjunction	-1216 Oct 27 j 19:10	24° <u>♄</u> 19'30	11°35'18	conjunction	-1208 Nov 14 j 23:24	12° <u>♄</u> 56'07	7°06'21
minimum elong	-1216 Oct 27 j 19:34	24° <u>♄</u> 19'32	11°35'17	minimum elong	-1208 Nov 14 j 23:41	12° <u>♄</u> 56'09	7°06'20
max. Earth dist.	-1216 Oct 28 j 07:26	24° <u>♄</u> 20'42	31.06091 AU	max. Earth dist.	-1208 Nov 16 j 12:30	12° <u>♄</u> 59'34	32.18763 AU
retrograde	-1215 Feb 08 j 12:35	26° <u>♄</u> 54'40			-1207 Jan 20 j 03:24	15° <u>♄</u>	
min. Earth dist.	-1215 Apr 27 j 09:57	25° <u>♄</u> 33'27	29.15385 AU	retrograde	-1207 Feb 26 j 17:02	15° <u>♄</u> 22'39	
opposition	-1215 Apr 28 j 00:12	25° <u>♄</u> 32'29	12°06'20		-1207 Apr 06 j 14:56	15° <u>♄</u>	
direct	-1215 Jul 17 j 00:25	24° <u>♄</u> 09'00		min. Earth dist.	-1207 May 15 j 19:22	14° <u>♄</u> 05'14	30.28953 AU
				opposition	-1207 May 17 j 09:03	14° <u>♄</u> 02'47	7°15'30
conjunction	-1215 Oct 30 j 10:09	26° <u>♄</u> 44'58	11°04'11	direct	-1207 Aug 05 j 13:39	12° <u>♄</u> 42'32	
minimum elong	-1215 Oct 30 j 10:33	26° <u>♄</u> 45'00	11°04'09		-1207 Nov 13 j 19:46	15° <u>♄</u>	
max. Earth dist.	-1215 Oct 31 j 02:56	26° <u>♄</u> 46'36	31.16712 AU				
retrograde	-1214 Feb 11 j 02:09	29° <u>♄</u> 19'08		conjunction	-1207 Nov 17 j 08:50	15° <u>♄</u> 07'52	6°30'44
opposition	-1214 Apr 30 j 18:51	27° <u>♄</u> 57'11	11°32'26	minimum elong	-1207 Nov 17 j 09:06	15° <u>♄</u> 07'53	6°30'43
min. Earth dist.	-1214 Apr 30 j 01:53	27° <u>♄</u> 58'20	29.26169 AU	max. Earth dist.	-1207 Nov 18 j 23:15	15° <u>♄</u> 11'24	32.36465 AU
direct	-1214 Jul 19 j 18:59	26° <u>♄</u> 34'03		retrograde	-1206 Mar 01 j 03:03	17° <u>♄</u> 33'13	
				min. Earth dist.	-1206 May 18 j 05:29	16° <u>♄</u> 16'16	30.46717 AU



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 13

Attention, astronomical year style is used: The year -1206 in astronomical counting style is the year 1207 BCE in historical counting style.

opposition	-1206 May 19 j 21:59	16° <del>M</del> 13'39	6°37'19	retrograde	-1198 Mar 17 j 02:13	3° <del>A</del> 50'49	
	-1206 Jul 19 j 01:15	15° <del>R</del> <del>M</del>		min. Earth dist.	-1198 Jun 03 j 14:53	2° <del>A</del> 37'26	32.11829 AU
direct	-1206 Aug 08 j 03:04	14° <del>M</del> 53'47		opposition	-1198 Jun 06 j 00:44	2° <del>A</del> 33'51	1°34'33
	-1206 Aug 27 j 19:46	15° <del>M</del>		direct	-1198 Aug 25 j 10:02	1° <del>A</del> 17'20	
conjunction	-1206 Nov 19 j 17:37	17° <del>M</del> 17'43	5°54'59	conjunction	-1198 Dec 05 j 13:13	3° <del>A</del> 30'35	1°11'53
minimum elong	-1206 Nov 19 j 17:52	17° <del>M</del> 17'44	5°54'59	minimum elong	-1198 Dec 05 j 13:16	3° <del>A</del> 30'35	1°11'52
max. Earth dist.	-1206 Nov 21 j 11:16	17° <del>M</del> 21'32	32.54778 AU	max. Earth dist.	-1198 Dec 07 j 22:56	3° <del>A</del> 35'33	34.23450 AU
retrograde	-1205 Mar 03 j 09:58	19° <del>M</del> 41'52		retrograde	-1197 Mar 19 j 05:43	5° <del>A</del> 45'32	
min. Earth dist.	-1205 May 20 j 16:10	18° <del>M</del> 25'18	30.65086 AU	min. Earth dist.	-1197 Jun 05 j 18:36	4° <del>A</del> 32'40	32.35060 AU
opposition	-1205 May 22 j 10:06	18° <del>M</del> 22'36	5°59'02	opposition	-1197 Jun 08 j 06:50	4° <del>A</del> 28'57	0°58'00
direct	-1205 Aug 10 j 16:51	17° <del>M</del> 03'08		direct	-1197 Aug 27 j 16:48	3° <del>A</del> 12'52	
conjunction	-1205 Nov 22 j 01:34	19° <del>M</del> 25'39	5°19'10	conjunction	-1197 Dec 07 j 15:56	5° <del>A</del> 24'54	0°37'43
minimum elong	-1205 Nov 22 j 01:47	19° <del>M</del> 25'40	5°19'08	minimum elong	-1197 Dec 07 j 15:58	5° <del>A</del> 24'55	0°37'41
max. Earth dist.	-1205 Nov 23 j 20:22	19° <del>M</del> 29'32	32.73683 AU	max. Earth dist.	-1197 Dec 10 j 04:11	5° <del>A</del> 30'02	34.46892 AU
retrograde	-1204 Mar 04 j 17:22	21° <del>M</del> 48'35		retrograde	-1196 Mar 20 j 06:59	7° <del>A</del> 38'47	
min. Earth dist.	-1204 May 21 j 23:58	20° <del>M</del> 32'30	30.84086 AU	min. Earth dist.	-1196 Jun 06 j 23:37	6° <del>A</del> 26'17	32.58633 AU
opposition	-1204 May 23 j 21:10	20° <del>M</del> 29'37	5°20'45	opposition	-1196 Jun 09 j 12:14	6° <del>A</del> 22'34	0°21'55
direct	-1204 Aug 12 j 04:10	19° <del>M</del> 10'32		direct	-1196 Aug 28 j 23:19	5° <del>A</del> 06'55	
conjunction	-1204 Nov 23 j 08:50	21° <del>M</del> 31'38	4°43'21	conjunction	-1196 Dec 08 j 17:59	7° <del>A</del> 17'44	0°04'01
minimum elong	-1204 Nov 23 j 09:01	21° <del>M</del> 31'39	4°43'21	minimum elong	-1196 Dec 08 j 18:00	7° <del>A</del> 17'44	0°04'01
max. Earth dist.	-1204 Nov 25 j 06:54	21° <del>M</del> 35'48	32.93197 AU	behind sun begin	-1196 Dec 08 j 11:43	7° <del>A</del> 17'14	
retrograde	-1203 Mar 06 j 23:04	23° <del>M</del> 53'23		behind sun end	-1196 Dec 09 j 00:17	7° <del>A</del> 18'14	
min. Earth dist.	-1203 May 24 j 09:12	22° <del>M</del> 37'40	31.03740 AU	max. Earth dist.	-1196 Dec 11 j 06:41	7° <del>A</del> 22'52	34.70626 AU
opposition	-1203 May 26 j 07:45	22° <del>M</del> 34'42	4°42'31	desc. node	-1195 Jan 21 j 00:17	8° <del>A</del> 39'13	
direct	-1203 Aug 14 j 14:36	21° <del>M</del> 16'00		retrograde	-1195 Mar 22 j 08:49	9° <del>A</del> 30'33	
conjunction	-1203 Nov 25 j 15:09	23° <del>M</del> 35'44	4°07'36	min. Earth dist.	-1195 Jun 09 j 02:01	8° <del>A</del> 18'31	32.82482 AU
minimum elong	-1203 Nov 25 j 15:19	23° <del>M</del> 35'45	4°07'34	opposition	-1195 Jun 11 j 17:03	8° <del>A</del> 14'41	0°-13'-39
max. Earth dist.	-1203 Nov 27 j 14:53	23° <del>M</del> 40'00	33.13367 AU	direct	-1195 Aug 31 j 04:00	6° <del>A</del> 59'27	
retrograde	-1202 Mar 09 j 05:53	25° <del>M</del> 56'17		conjunction	-1195 Dec 10 j 19:26	9° <del>A</del> 09'03	0°-29'-21
min. Earth dist.	-1202 May 26 j 15:24	24° <del>M</del> 41'05	31.24075 AU	minimum elong	-1195 Dec 10 j 19:25	9° <del>A</del> 09'03	0°29'23
opposition	-1202 May 28 j 17:25	24° <del>M</del> 37'55	4°04'25	max. Earth dist.	-1195 Dec 13 j 09:58	9° <del>A</del> 14'18	34.94569 AU
direct	-1202 Aug 17 j 00:00	23° <del>M</del> 19'37		retrograde	-1194 Mar 24 j 10:27	11° <del>A</del> 20'49	
conjunction	-1202 Nov 27 j 20:56	25° <del>M</del> 38'00	3°31'58	min. Earth dist.	-1194 Jun 11 j 06:04	10° <del>A</del> 09'06	33.06540 AU
minimum elong	-1202 Nov 27 j 21:05	25° <del>M</del> 38'00	3°31'58	opposition	-1194 Jun 13 j 21:22	10° <del>A</del> 05'17	0°-48'-43
max. Earth dist.	-1202 Nov 29 j 23:17	25° <del>M</del> 42'28	33.34191 AU	direct	-1194 Sep 02 j 07:12	8° <del>A</del> 50'26	
retrograde	-1201 Mar 11 j 12:05	27° <del>M</del> 57'24		conjunction	-1194 Dec 12 j 20:28	10° <del>A</del> 58'50	-1°-2'-9
min. Earth dist.	-1201 May 28 j 22:46	26° <del>M</del> 42'36	31.45104 AU	minimum elong	-1194 Dec 12 j 20:26	10° <del>A</del> 58'50	1°02'10
opposition	-1201 May 31 j 02:19	26° <del>M</del> 39'21	3°26'30	max. Earth dist.	-1194 Dec 15 j 11:46	11° <del>A</del> 04'07	35.18688 AU
direct	-1201 Aug 19 j 08:52	25° <del>M</del> 21'29		retrograde	-1193 Mar 26 j 11:50	13° <del>A</del> 09'32	
conjunction	-1201 Nov 30 j 02:03	27° <del>M</del> 38'32	2°56'32	min. Earth dist.	-1193 Jun 13 j 07:43	11° <del>A</del> 58'12	33.30760 AU
minimum elong	-1201 Nov 30 j 02:10	27° <del>M</del> 38'33	2°56'31	opposition	-1193 Jun 16 j 00:40	11° <del>A</del> 54'18	-1°-23'-13
max. Earth dist.	-1201 Dec 02 j 06:38	27° <del>M</del> 43'10	33.55678 AU	direct	-1193 Sep 04 j 10:10	10° <del>A</del> 39'48	
retrograde	-1200 Mar 12 j 18:14	29° <del>M</del> 56'47		conjunction	-1193 Dec 14 j 20:45	12° <del>A</del> 47'02	-1°-34'-26
min. Earth dist.	-1200 May 30 j 04:11	28° <del>M</del> 42'29	31.66771 AU	minimum elong	-1193 Dec 14 j 20:41	12° <del>A</del> 47'02	1°34'29
opposition	-1200 Jun 01 j 10:23	28° <del>M</del> 39'06	2°48'51	max. Earth dist.	-1193 Dec 17 j 12:50	12° <del>A</del> 52'20	35.42941 AU
direct	-1200 Aug 20 j 18:25	27° <del>M</del> 21'40		retrograde	-1192 Mar 27 j 13:00	14° <del>A</del> 56'40	
conjunction	-1200 Dec 01 j 06:18	29° <del>M</del> 37'26	2°21'20	min. Earth dist.	-1192 Jun 14 j 09:45	13° <del>A</del> 45'39	33.55157 AU
minimum elong	-1200 Dec 01 j 06:24	29° <del>M</del> 37'27	2°21'20	opposition	-1192 Jun 17 j 03:33	13° <del>A</del> 41'44	-1°-57'-8
max. Earth dist.	-1200 Dec 03 j 12:35	29° <del>M</del> 42'10	33.77753 AU	direct	-1192 Sep 05 j 13:02	12° <del>A</del> 27'34	
retrograde	-1200 Dec 12 j 01:52	0° <del>A</del>		conjunction	-1192 Dec 15 j 20:25	14° <del>A</del> 33'38	-2°-6'-12
min. Earth dist.	-1199 Mar 14 j 23:56	1° <del>A</del> 54'35		minimum elong	-1192 Dec 15 j 20:21	14° <del>A</del> 33'38	2°06'14
opposition	-1199 Jun 01 j 09:34	0° <del>A</del> 40'45	31.89043 AU	max. Earth dist.	-1192 Dec 18 j 14:24	14° <del>A</del> 39'02	35.67366 AU
direct	-1199 Jun 03 j 17:56	0° <del>A</del> 37'15	2°11'31	retrograde	-1191 Mar 29 j 12:09	16° <del>A</del> 42'12	
conjunction	-1199 Jun 29 j 18:14	30° <del>R</del> <del>M</del>		min. Earth dist.	-1191 Jun 16 j 10:55	15° <del>A</del> 31'31	33.79743 AU
minimum elong	-1199 Aug 23 j 01:12	29° <del>M</del> 20'16		opposition	-1191 Jun 19 j 05:42	15° <del>A</del> 27'32	-2°-30'-26
max. Earth dist.	-1199 Oct 13 j 18:55	0° <del>A</del>		direct	-1191 Sep 07 j 17:33	14° <del>A</del> 13'43	
conjunction	-1199 Dec 03 j 10:10	1° <del>A</del> 34'46	1°46'26	conjunction	-1191 Dec 17 j 19:25	16° <del>A</del> 18'38	-2°-37'-24
minimum elong	-1199 Dec 03 j 10:14	1° <del>A</del> 34'47	1°46'25	minimum elong	-1191 Dec 17 j 19:20	16° <del>A</del> 18'38	2°37'27
max. Earth dist.	-1199 Dec 05 j 19:10	1° <del>A</del> 39'42	34.00375 AU	max. Earth dist.	-1191 Dec 20 j 13:43	16° <del>A</del> 24'01	35.91992 AU



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 14

Attention, astronomical year style is used: The year -1190 in astronomical counting style is the year 1191 BCE in historical counting style.

retrograde	-1190 Mar 31 j 12:19	18° $\mathring{A}$ 26'11		opposition	-1182 Jul 04 j 22:47	0° $\mathring{B}$ 19'04	-7°00'-28
min. Earth dist.	-1190 Jun 18 j 10:26	17° $\mathring{A}$ 15'51	34.04588 AU		-1182 Jul 19 j 02:03	30° $\mathring{R}$ $\mathring{A}$	
opposition	-1190 Jun 21 j 07:12	17° $\mathring{A}$ 11'47	-3°-3'-7	direct	-1182 Sep 23 j 14:05	29° $\mathring{A}$ 08'25	
direct	-1190 Sep 09 j 19:12	15° $\mathring{A}$ 58'18			-1182 Nov 25 j 03:55	0° $\mathring{B}$	
conjunction	-1190 Dec 19 j 18:00	18° $\mathring{A}$ 02'06	-3°-8'-2	conjunction	-1181 Jan 01 j 13:16	1° $\mathring{B}$ 04'29	-6°-51'-1
minimum elong	-1190 Dec 19 j 17:54	18° $\mathring{A}$ 02'06	3°08'04	minimum elong	-1181 Jan 01 j 13:05	1° $\mathring{B}$ 04'29	6°51'03
max. Earth dist.	-1190 Dec 22 j 14:34	18° $\mathring{A}$ 07'38	36.16866 AU	max. Earth dist.	-1181 Jan 04 j 15:03	1° $\mathring{B}$ 10'07	38.21310 AU
retrograde	-1189 Apr 02 j 08:04	20° $\mathring{A}$ 08'39		retrograde	-1181 Apr 15 j 02:44	3° $\mathring{B}$ 04'00	
min. Earth dist.	-1189 Jun 20 j 11:06	18° $\mathring{A}$ 58'37	34.29690 AU	min. Earth dist.	-1181 Jul 03 j 16:01	1° $\mathring{B}$ 56'40	36.35568 AU
opposition	-1189 Jun 23 j 08:07	18° $\mathring{A}$ 54'33	-3°-35'-9	opposition	-1181 Jul 06 j 19:24	1° $\mathring{B}$ 52'24	-7°-27'-5
direct	-1189 Sep 11 j 22:02	17° $\mathring{A}$ 41'24		direct	-1181 Sep 25 j 11:26	0° $\mathring{B}$ 42'04	
conjunction	-1189 Dec 21 j 15:59	19° $\mathring{A}$ 44'08	-3°-38'-5	conjunction	-1180 Jan 03 j 07:46	2° $\mathring{B}$ 37'15	-7°-16'-5
minimum elong	-1189 Dec 21 j 15:52	19° $\mathring{A}$ 44'07	3°38'07	minimum elong	-1180 Jan 03 j 07:33	2° $\mathring{B}$ 37'14	7°16'07
max. Earth dist.	-1189 Dec 24 j 12:47	19° $\mathring{A}$ 49'39	36.41993 AU	max. Earth dist.	-1180 Jan 06 j 10:10	2° $\mathring{B}$ 42'53	38.46686 AU
retrograde	-1188 Apr 03 j 05:06	21° $\mathring{A}$ 49'42		retrograde	-1180 Apr 15 j 21:29	4° $\mathring{B}$ 35'57	
min. Earth dist.	-1188 Jun 21 j 08:58	20° $\mathring{A}$ 40'05	34.55054 AU	min. Earth dist.	-1180 Jul 04 j 12:51	3° $\mathring{B}$ 28'49	36.61077 AU
opposition	-1188 Jun 24 j 08:13	20° $\mathring{A}$ 35'54	-4°-6'-32	opposition	-1180 Jul 07 j 15:37	3° $\mathring{B}$ 24'36	-7°-53'-1
direct	-1188 Sep 12 j 22:59	19° $\mathring{A}$ 23'07		direct	-1180 Sep 26 j 07:04	2° $\mathring{B}$ 14'33	
conjunction	-1188 Dec 22 j 13:29	21° $\mathring{A}$ 24'49	-4°-7'-31	conjunction	-1179 Jan 04 j 01:53	4° $\mathring{B}$ 08'51	-7°-40'-32
minimum elong	-1188 Dec 22 j 13:21	21° $\mathring{A}$ 24'48	4°07'32	minimum elong	-1179 Jan 04 j 01:42	4° $\mathring{B}$ 08'50	7°40'34
max. Earth dist.	-1188 Dec 25 j 12:08	21° $\mathring{A}$ 30'25	36.67351 AU	max. Earth dist.	-1179 Jan 07 j 04:48	4° $\mathring{B}$ 14'29	38.71947 AU
retrograde	-1187 Apr 05 j 02:35	23° $\mathring{A}$ 29'27		retrograde	-1179 Apr 17 j 15:45	6° $\mathring{B}$ 06'44	
min. Earth dist.	-1187 Jun 23 j 08:34	22° $\mathring{A}$ 20'09	34.80654 AU	min. Earth dist.	-1179 Jul 06 j 07:44	4° $\mathring{B}$ 59'53	36.86481 AU
opposition	-1187 Jun 26 j 08:04	22° $\mathring{A}$ 15'58	-4°-37'-14	opposition	-1179 Jul 09 j 11:16	4° $\mathring{B}$ 55'39	-8°-18'-16
direct	-1187 Sep 14 j 22:01	21° $\mathring{A}$ 03'33		direct	-1179 Sep 28 j 03:02	3° $\mathring{B}$ 45'52	
conjunction	-1187 Dec 24 j 10:27	23° $\mathring{A}$ 04'14	-4°-36'-19	conjunction	-1178 Jan 05 j 19:20	5° $\mathring{B}$ 39'19	-8°-4'-20
minimum elong	-1187 Dec 24 j 10:18	23° $\mathring{A}$ 04'13	4°36'21	minimum elong	-1178 Jan 05 j 19:07	5° $\mathring{B}$ 39'18	8°04'23
max. Earth dist.	-1187 Dec 27 j 09:59	23° $\mathring{A}$ 09'52	36.92916 AU	max. Earth dist.	-1178 Jan 08 j 22:05	5° $\mathring{B}$ 44'53	38.97119 AU
retrograde	-1186 Apr 06 j 23:55	25° $\mathring{A}$ 07'58		retrograde	-1178 Apr 19 j 12:02	7° $\mathring{B}$ 36'24	
min. Earth dist.	-1186 Jun 25 j 06:08	23° $\mathring{A}$ 59'03	35.06425 AU	min. Earth dist.	-1178 Jul 08 j 02:27	6° $\mathring{B}$ 29'47	37.11851 AU
opposition	-1186 Jun 28 j 07:11	23° $\mathring{A}$ 54'49	-5°-7'-15	opposition	-1178 Jul 11 j 06:31	6° $\mathring{B}$ 25'33	-8°-42'-51
direct	-1186 Sep 16 j 21:12	22° $\mathring{A}$ 42'46		direct	-1178 Sep 29 j 20:04	5° $\mathring{B}$ 16'02	
conjunction	-1186 Dec 26 j 06:59	24° $\mathring{A}$ 42'28	-5°-4'-31	conjunction	-1177 Jan 07 j 12:39	7° $\mathring{B}$ 08'39	-8°-27'-31
minimum elong	-1186 Dec 26 j 06:50	24° $\mathring{A}$ 42'28	5°04'32	minimum elong	-1177 Jan 07 j 12:27	7° $\mathring{B}$ 08'38	8°27'33
max. Earth dist.	-1186 Dec 29 j 07:02	24° $\mathring{A}$ 48'07	37.18603 AU	max. Earth dist.	-1177 Jan 10 j 16:51	7° $\mathring{B}$ 14'17	39.22271 AU
retrograde	-1185 Apr 08 j 22:44	26° $\mathring{A}$ 45'20		retrograde	-1177 Apr 21 j 04:26	9° $\mathring{B}$ 04'57	
min. Earth dist.	-1185 Jun 27 j 04:10	25° $\mathring{A}$ 36'45	35.32319 AU	min. Earth dist.	-1177 Jul 09 j 21:16	7° $\mathring{B}$ 58'33	37.37207 AU
opposition	-1185 Jun 30 j 05:45	25° $\mathring{A}$ 32'31	-5°-36'-34	opposition	-1177 Jul 13 j 01:04	7° $\mathring{B}$ 54'21	-9°-6'-44
direct	-1185 Sep 18 j 18:13	24° $\mathring{A}$ 20'50		direct	-1177 Oct 01 j 15:40	6° $\mathring{B}$ 45'06	
conjunction	-1185 Dec 28 j 03:15	26° $\mathring{A}$ 19'36	-5°-32'-5	conjunction	-1176 Jan 09 j 05:23	8° $\mathring{B}$ 36'55	-8°-50'-3
minimum elong	-1185 Dec 28 j 03:05	26° $\mathring{A}$ 19'35	5°32'07	minimum elong	-1176 Jan 09 j 05:11	8° $\mathring{B}$ 36'54	8°50'05
max. Earth dist.	-1185 Dec 31 j 04:43	26° $\mathring{A}$ 25'19	37.44362 AU	max. Earth dist.	-1176 Jan 12 j 09:05	8° $\mathring{B}$ 42'30	39.47429 AU
retrograde	-1184 Apr 09 j 18:54	28° $\mathring{A}$ 21'36		retrograde	-1176 Apr 21 j 20:08	10° $\mathring{B}$ 32'28	
min. Earth dist.	-1184 Jun 28 j 02:08	27° $\mathring{A}$ 13'20	35.58238 AU	min. Earth dist.	-1176 Jul 10 j 14:00	9° $\mathring{B}$ 26'24	37.62586 AU
opposition	-1184 Jul 01 j 03:52	27° $\mathring{A}$ 09'06	-6°-5'-13	opposition	-1176 Jul 13 j 19:18	9° $\mathring{B}$ 22'07	-9°-29'-56
direct	-1184 Sep 19 j 17:19	25° $\mathring{A}$ 57'47		direct	-1176 Oct 02 j 10:43	8° $\mathring{B}$ 13'10	
conjunction	-1184 Dec 28 j 22:49	27° $\mathring{A}$ 55'39	-5°-59'-1	conjunction	-1175 Jan 09 j 21:41	10° $\mathring{B}$ 04'12	-9°-11'-57
minimum elong	-1184 Dec 28 j 22:39	27° $\mathring{A}$ 55'38	5°59'03	minimum elong	-1175 Jan 09 j 21:29	10° $\mathring{B}$ 04'11	9°12'00
max. Earth dist.	-1184 Dec 31 j 23:54	28° $\mathring{A}$ 01'17	37.70104 AU	max. Earth dist.	-1175 Jan 13 j 02:52	10° $\mathring{B}$ 09'51	39.72597 AU
retrograde	-1183 Apr 11 j 15:40	29° $\mathring{A}$ 56'48		retrograde	-1175 Apr 23 j 10:09	11° $\mathring{B}$ 59'02	
min. Earth dist.	-1183 Jun 29 j 22:34	28° $\mathring{A}$ 48'54	35.84130 AU	min. Earth dist.	-1175 Jul 12 j 08:31	10° $\mathring{B}$ 53'11	37.87972 AU
opposition	-1183 Jul 03 j 01:34	28° $\mathring{A}$ 44'38	-6°-33'-11	opposition	-1175 Jul 15 j 13:16	10° $\mathring{B}$ 48'56	-9°-52'-27
direct	-1183 Sep 21 j 14:21	27° $\mathring{A}$ 33'39		direct	-1175 Oct 04 j 06:58	9° $\mathring{B}$ 40'17	
conjunction	-1183 Dec 30 j 18:17	29° $\mathring{A}$ 30'37	-6°-25'-20	conjunction	-1174 Jan 11 j 13:48	11° $\mathring{B}$ 30'34	-9°-33'-14
minimum elong	-1183 Dec 30 j 18:05	29° $\mathring{A}$ 30'36	6°25'22	minimum elong	-1174 Jan 11 j 13:35	11° $\mathring{B}$ 30'33	9°33'15
max. Earth dist.	-1182 Jan 02 j 20:43	29° $\mathring{A}$ 36'19	37.95769 AU	max. Earth dist.	-1174 Jan 14 j 18:52	11° $\mathring{B}$ 36'10	39.97770 AU
	-1182 Jan 15 j 21:21	0° $\mathring{B}$		retrograde	-1174 Apr 25 j 01:46	13° $\mathring{B}$ 24'42	
retrograde	-1182 Apr 13 j 08:20	1° $\mathring{B}$ 30'57		min. Earth dist.	-1174 Jul 14 j 00:41	12° $\mathring{B}$ 19'09	38.13335 AU
min. Earth dist.	-1182 Jul 01 j 20:34	0° $\mathring{B}$ 23'17	36.09920 AU	opposition	-1174 Jul 17 j 06:35	12° $\mathring{B}$ 14'52	-10°-14'-17



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 15

Attention, astronomical year style is used: The year -1174 in astronomical counting style is the year 1175 BCE in historical counting style.

direct	-1174 Oct 06 j 00:52	11°☾06'30		minimum elong	-1165 Jan 24 j 01:06	23°☾50'50	12°18'12
				max. Earth dist.	-1165 Jan 27 j 06:01	23°☾56'08	42.15831 AU
conjunction	-1173 Jan 13 j 05:29	12°☾56'03	-9°-53'-53	retrograde	-1165 May 07 j 15:26	25°☾39'13	
minimum elong	-1173 Jan 13 j 05:17	12°☾56'02	9°53'55	min. Earth dist.	-1165 Jul 27 j 00:18	24°☾35'29	40.32285 AU
max. Earth dist.	-1173 Jan 16 j 10:49	13°☾01'39	40.22885 AU	opposition	-1165 Jul 30 j 03:19	24°☾31'30	-13°-2'-52
retrograde	-1173 Apr 26 j 19:04	14°☾49'31		direct	-1165 Oct 18 j 20:40	23°☾25'21	
min. Earth dist.	-1173 Jul 15 j 18:13	13°☾44'13	38.38630 AU				
opposition	-1173 Jul 18 j 23:43	13°☾39'58	-10°-35'-28	conjunction	-1164 Jan 25 j 14:17	25°☾09'00	-12°-33'-41
direct	-1173 Oct 07 j 16:34	12°☾31'53		minimum elong	-1164 Jan 25 j 14:06	25°☾08'59	12°33'43
				max. Earth dist.	-1164 Jan 28 j 17:57	25°☾14'11	42.38844 AU
conjunction	-1172 Jan 14 j 20:59	14°☾20'44	-10°-13'-55	retrograde	-1164 May 08 j 05:05	26°☾56'47	
minimum elong	-1172 Jan 14 j 20:46	14°☾20'43	10°13'57	min. Earth dist.	-1164 Jul 27 j 13:12	25°☾53'19	40.55431 AU
max. Earth dist.	-1172 Jan 18 j 03:04	14°☾26'21	40.47900 AU	opposition	-1164 Jul 30 j 17:09	25°☾49'18	-13°-18'-38
retrograde	-1172 Apr 27 j 11:30	16°☾13'32		direct	-1164 Oct 19 j 09:47	24°☾43'22	
min. Earth dist.	-1172 Jul 16 j 10:51	15°☾08'29	38.63773 AU				
opposition	-1172 Jul 19 j 16:20	15°☾04'15	-10°-56'-1	conjunction	-1163 Jan 26 j 03:07	26°☾26'27	-12°-48'-40
direct	-1172 Oct 08 j 08:39	13°☾56'28		minimum elong	-1163 Jan 26 j 02:55	26°☾26'26	12°48'42
				max. Earth dist.	-1163 Jan 29 j 07:30	26°☾31'40	42.61711 AU
conjunction	-1171 Jan 15 j 12:06	15°☾44'38	-10°-33'-22	retrograde	-1163 May 09 j 15:24	28°☾13'42	
minimum elong	-1171 Jan 15 j 11:54	15°☾44'37	10°33'24	min. Earth dist.	-1163 Jul 29 j 04:03	27°☾10'22	40.78433 AU
max. Earth dist.	-1171 Jan 18 j 17:13	15°☾50'08	40.72738 AU	opposition	-1163 Aug 01 j 06:50	27°☾06'26	-13°-33'-49
retrograde	-1171 Apr 29 j 05:18	17°☾36'46		direct	-1163 Oct 21 j 01:33	26°☾00'44	
min. Earth dist.	-1171 Jul 18 j 02:52	16°☾31'59	38.88727 AU				
opposition	-1171 Jul 21 j 08:44	16°☾27'46	-11°-15'-55	conjunction	-1162 Jan 27 j 15:42	27°☾43'15	-13°-3'-5
direct	-1171 Oct 09 j 22:53	15°☾20'15		minimum elong	-1162 Jan 27 j 15:32	27°☾43'15	13°03'07
				max. Earth dist.	-1162 Jan 30 j 19:48	27°☾48'26	42.84445 AU
conjunction	-1170 Jan 17 j 03:04	17°☾07'44	-10°-52'-13	retrograde	-1162 May 11 j 03:10	29°☾29'59	
minimum elong	-1170 Jan 17 j 02:52	17°☾07'44	10°52'15	min. Earth dist.	-1162 Jul 30 j 16:40	28°☾26'55	41.01267 AU
max. Earth dist.	-1170 Jan 20 j 09:00	17°☾13'16	40.97338 AU	opposition	-1162 Aug 02 j 20:04	28°☾22'57	-13°-48'-26
retrograde	-1170 Apr 30 j 18:43	18°☾59'14		direct	-1162 Oct 22 j 16:02	27°☾17'30	
min. Earth dist.	-1170 Jul 19 j 20:16	17°☾54'37	39.13398 AU				
opposition	-1170 Jul 23 j 00:48	17°☾50'29	-11°-35'-13	conjunction	-1161 Jan 29 j 04:02	28°☾59'30	-13°-16'-59
direct	-1170 Oct 11 j 16:18	16°☾43'13		minimum elong	-1161 Jan 29 j 03:50	28°☾59'29	13°17'00
				max. Earth dist.	-1161 Feb 01 j 07:38	29°☾04'36	43.06987 AU
conjunction	-1169 Jan 18 j 17:51	18°☾30'03	-11°-10'-31		-1161 Mar 09 j 21:45	0°≈	
minimum elong	-1169 Jan 18 j 17:38	18°☾30'02	11°10'33	retrograde	-1161 May 12 j 18:11	0°≈45'43	
max. Earth dist.	-1169 Jan 21 j 22:31	18°☾35'28	41.21639 AU		-1161 Jul 18 j 07:24	30°☾	
retrograde	-1169 May 02 j 07:34	20°☾20'54		min. Earth dist.	-1161 Aug 01 j 06:19	29°☾42'50	41.23908 AU
min. Earth dist.	-1169 Jul 21 j 11:11	19°☾16'32	39.37748 AU	opposition	-1161 Aug 04 j 09:02	29°☾38'55	-14°-2'-30
opposition	-1169 Jul 24 j 16:16	19°☾12'23	-11°-53'-55	direct	-1161 Oct 24 j 02:43	28°☾33'43	
direct	-1169 Oct 13 j 09:38	18°☾05'22			-1160 Jan 21 j 05:21	0°≈	
conjunction	-1168 Jan 20 j 08:12	19°☾51'32	-11°-28'-16	conjunction	-1160 Jan 30 j 16:14	0°≈15'12	-13°-30'-21
minimum elong	-1168 Jan 20 j 08:00	19°☾51'31	11°28'17	minimum elong	-1160 Jan 30 j 16:05	0°≈15'12	13°30'23
max. Earth dist.	-1168 Jan 23 j 12:56	19°☾56'55	41.45604 AU	max. Earth dist.	-1160 Feb 02 j 20:20	0°≈20'19	43.29319 AU
retrograde	-1168 May 02 j 21:20	21°☾41'45		retrograde	-1160 May 13 j 06:25	2°≈00'56	
min. Earth dist.	-1168 Jul 22 j 03:50	20°☾37'31	39.61772 AU	min. Earth dist.	-1160 Aug 01 j 19:42	0°≈58'14	41.46285 AU
opposition	-1168 Jul 25 j 07:40	20°☾33'26	-12°-12'-2	opposition	-1160 Aug 04 j 21:46	0°≈54'22	-14°-16'-1
direct	-1168 Oct 14 j 01:50	19°☾26'39			-1160 Sep 25 j 02:28	30°☾	
				direct	-1160 Oct 24 j 15:30	29°☾49'25	
conjunction	-1167 Jan 20 j 22:11	21°☾12'09	-11°-45'-27		-1160 Nov 22 j 15:52	0°≈	
minimum elong	-1167 Jan 20 j 21:59	21°☾12'08	11°45'29				
max. Earth dist.	-1167 Jan 24 j 02:45	21°☾17'30	41.69265 AU	conjunction	-1159 Jan 31 j 04:00	1°≈30'24	-13°-43'-14
retrograde	-1167 May 04 j 10:51	23°☾01'45		minimum elong	-1159 Jan 31 j 03:50	1°≈30'24	13°43'15
min. Earth dist.	-1167 Jul 23 j 18:36	21°☾57'42	39.85494 AU	max. Earth dist.	-1159 Feb 03 j 06:38	1°≈35'24	43.51365 AU
opposition	-1167 Jul 26 j 22:35	21°☾53'38	-12°-29'-34	retrograde	-1159 May 14 j 20:13	3°≈15'38	
direct	-1167 Oct 15 j 17:17	20°☾47'03		min. Earth dist.	-1159 Aug 03 j 08:14	2°≈13'10	41.68356 AU
				opposition	-1159 Aug 06 j 10:20	2°≈09'19	-14°-29'-1
conjunction	-1166 Jan 22 j 11:49	22°☾31'55	-12°-2'-5	direct	-1159 Oct 26 j 01:58	1°≈04'35	
minimum elong	-1166 Jan 22 j 11:38	22°☾31'54	12°02'07				
max. Earth dist.	-1166 Jan 25 j 15:35	22°☾37'10	41.92650 AU	conjunction	-1158 Feb 01 j 15:53	2°≈45'06	-13°-55'-37
retrograde	-1166 May 06 j 02:32	24°☾20'53		minimum elong	-1158 Feb 01 j 15:44	2°≈45'05	13°55'39
min. Earth dist.	-1166 Jul 25 j 09:23	23°☾17'00	40.08989 AU	max. Earth dist.	-1158 Feb 04 j 18:55	2°≈50'06	43.73061 AU
opposition	-1166 Jul 28 j 13:07	23°☾12'58	-12°-46'-31	retrograde	-1158 May 16 j 06:51	4°≈29'51	
direct	-1166 Oct 17 j 06:07	22°☾06'36		min. Earth dist.	-1158 Aug 04 j 22:18	3°≈27'29	41.90036 AU
				opposition	-1158 Aug 07 j 22:33	3°≈23'44	-14°-41'-32
conjunction	-1165 Jan 24 j 01:18	23°☾50'51	-12°-18'-10	direct	-1158 Oct 27 j 15:22	2°≈19'13	



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 16

Attention, astronomical year style is used: The year -1157 in astronomical counting style is the year 1158 BCE in historical counting style.

conjunction	-1157 Feb 03 j 03:35	3°≈59'15	-14°-7'-32			-1149 Apr 26 j 20:23	15°≈	
minimum elong	-1157 Feb 03 j 03:26	3°≈59'15	14°07'34	retrograde		-1149 May 27 j 04:15	15°≈10'21	
max. Earth dist.	-1157 Feb 06 j 05:07	4°≈04'08	43.94354 AU			-1149 Jun 26 j 19:57	15°≈	
retrograde	-1157 May 17 j 16:37	5°≈43'31		min. Earth dist.		-1149 Aug 16 j 05:49	14°≈09'08	43.68592 AU
min. Earth dist.	-1157 Aug 06 j 10:05	4°≈41'21	42.11278 AU	opposition		-1149 Aug 19 j 01:03	14°≈05'44	-16°-12'-51
opposition	-1157 Aug 09 j 10:32	4°≈37'36	-14°-53'-34	direct		-1149 Nov 07 j 20:56	13°≈02'42	
direct	-1157 Oct 29 j 04:39	3°≈33'17						
conjunction	-1156 Feb 04 j 14:52	5°≈12'49	-14°-19'-1	conjunction		-1148 Feb 14 j 01:42	14°≈38'38	-15°-34'-35
minimum elong	-1156 Feb 04 j 14:43	5°≈12'48	14°19'03	minimum elong		-1148 Feb 14 j 01:35	14°≈38'37	15°34'37
max. Earth dist.	-1156 Feb 07 j 15:34	5°≈17'37	44.15189 AU	max. Earth dist.		-1148 Feb 16 j 23:02	14°≈43'03	45.70128 AU
retrograde	-1156 May 18 j 03:18	6°≈56'36				-1148 Feb 28 j 03:48	15°≈	
min. Earth dist.	-1156 Aug 06 j 23:34	5°≈54'31	42.32072 AU	retrograde		-1148 May 27 j 14:35	16°≈18'49	
opposition	-1156 Aug 09 j 22:23	5°≈50'51	-15°-5'-8	min. Earth dist.		-1148 Aug 16 j 16:56	15°≈17'43	43.87031 AU
direct	-1156 Oct 29 j 17:56	4°≈46'42		opposition		-1148 Aug 19 j 10:52	15°≈14'24	-16°-20'-41
						-1148 Aug 31 j 10:15	15°≈	
conjunction	-1155 Feb 05 j 02:07	6°≈25'44	-14°-30'-3	direct		-1148 Nov 08 j 05:55	14°≈11'33	
minimum elong	-1155 Feb 05 j 01:58	6°≈25'44	14°30'04			-1147 Jan 13 j 03:43	15°≈	
max. Earth dist.	-1155 Feb 08 j 02:38	6°≈30'30	44.35606 AU	conjunction		-1147 Feb 14 j 11:14	15°≈47'07	-15°-42'-3
retrograde	-1155 May 19 j 14:52	8°≈09'01		minimum elong		-1147 Feb 14 j 11:10	15°≈47'07	15°42'05
min. Earth dist.	-1155 Aug 08 j 11:33	7°≈07'03	42.52443 AU	max. Earth dist.		-1147 Feb 17 j 06:59	15°≈51'25	45.88288 AU
opposition	-1155 Aug 11 j 09:48	7°≈03'26	-15°-16'-14	retrograde		-1147 May 29 j 00:49	17°≈26'56	
direct	-1155 Oct 31 j 05:37	5°≈59'26		min. Earth dist.		-1147 Aug 18 j 02:23	16°≈26'01	44.05131 AU
				opposition		-1147 Aug 20 j 20:27	16°≈22'42	-16°-28'-6
conjunction	-1154 Feb 06 j 12:55	7°≈37'59	-14°-40'-37	direct		-1147 Nov 09 j 14:12	15°≈20'02	
minimum elong	-1154 Feb 06 j 12:46	7°≈37'58	14°40'40					
max. Earth dist.	-1154 Feb 09 j 11:53	7°≈42'37	44.55629 AU	conjunction		-1146 Feb 15 j 20:42	16°≈55'15	-15°-49'-7
retrograde	-1154 May 21 j 04:03	9°≈20'46		minimum elong		-1146 Feb 15 j 20:37	16°≈55'15	15°49'09
min. Earth dist.	-1154 Aug 09 j 23:05	8°≈18'55	42.72462 AU	max. Earth dist.		-1146 Feb 18 j 16:00	16°≈59'31	46.06062 AU
opposition	-1154 Aug 12 j 21:01	8°≈15'20	-15°-26'-51	retrograde		-1146 May 30 j 07:54	18°≈34'43	
direct	-1154 Nov 01 j 14:29	7°≈11'29		min. Earth dist.		-1146 Aug 19 j 13:59	17°≈33'52	44.22812 AU
				opposition		-1146 Aug 22 j 05:59	17°≈30'40	-16°-35'-6
conjunction	-1153 Feb 07 j 23:39	8°≈49'32	-14°-50'-45	direct		-1146 Nov 11 j 02:05	16°≈28'10	
minimum elong	-1153 Feb 07 j 23:32	8°≈49'32	14°50'46					
max. Earth dist.	-1153 Feb 10 j 23:04	8°≈54'11	44.75324 AU	conjunction		-1145 Feb 17 j 06:11	18°≈03'02	-15°-55'-48
retrograde	-1153 May 22 j 13:13	10°≈31'50		minimum elong		-1145 Feb 17 j 06:08	18°≈03'02	15°55'50
min. Earth dist.	-1153 Aug 11 j 11:14	9°≈30'04	42.92169 AU	max. Earth dist.		-1145 Feb 20 j 00:33	18°≈07'13	46.23403 AU
opposition	-1153 Aug 14 j 07:47	9°≈26'33	-15°-37'00	retrograde		-1145 May 31 j 15:43	19°≈42'08	
direct	-1153 Nov 03 j 02:20	8°≈22'51		min. Earth dist.		-1145 Aug 20 j 23:31	18°≈41'27	44.40017 AU
				opposition		-1145 Aug 23 j 15:05	18°≈38'15	-16°-41'-43
conjunction	-1152 Feb 09 j 10:04	10°≈00'27	-15°00'-25	direct		-1145 Nov 12 j 13:14	17°≈35'55	
minimum elong	-1152 Feb 09 j 09:57	10°≈00'26	15°00'27					
max. Earth dist.	-1152 Feb 12 j 08:16	10°≈04'59	44.94756 AU	conjunction		-1144 Feb 18 j 15:19	19°≈10'27	-16°-2'-8
retrograde	-1152 May 22 j 21:53	11°≈42'16		minimum elong		-1144 Feb 18 j 15:15	19°≈10'26	16°02'09
min. Earth dist.	-1152 Aug 11 j 21:20	10°≈40'40	43.11628 AU	max. Earth dist.		-1144 Feb 21 j 07:53	19°≈14'30	46.40259 AU
opposition	-1152 Aug 14 j 18:24	10°≈37'08	-15°-46'-40	retrograde		-1144 Jun 01 j 03:00	20°≈49'11	
direct	-1152 Nov 03 j 13:55	9°≈33'35		min. Earth dist.		-1144 Aug 21 j 09:57	19°≈48'34	44.56747 AU
				opposition		-1144 Aug 24 j 00:16	19°≈45'27	-16°-47'-58
conjunction	-1151 Feb 09 j 20:07	11°≈10'44	-15°-9'-37	direct		-1144 Nov 12 j 20:48	18°≈43'15	
minimum elong	-1151 Feb 09 j 20:01	11°≈10'44	15°09'38					
max. Earth dist.	-1151 Feb 12 j 18:20	11°≈15'16	45.13945 AU	conjunction		-1143 Feb 19 j 00:18	20°≈17'25	-16°-8'-5
retrograde	-1151 May 24 j 06:47	12°≈52'08		minimum elong		-1143 Feb 19 j 00:15	20°≈17'25	16°08'07
min. Earth dist.	-1151 Aug 13 j 09:11	11°≈50'37	43.30857 AU	max. Earth dist.		-1143 Feb 21 j 16:52	20°≈21'27	46.56652 AU
opposition	-1151 Aug 16 j 04:57	11°≈47'09	-15°-55'-52	retrograde		-1143 Jun 02 j 11:58	21°≈55'47	
direct	-1151 Nov 05 j 01:38	10°≈43'46		min. Earth dist.		-1143 Aug 22 j 20:13	20°≈55'13	44.73005 AU
				opposition		-1143 Aug 25 j 09:10	20°≈52'11	-16°-53'-50
conjunction	-1150 Feb 11 j 06:15	12°≈20'30	-15°-18'-23	direct		-1143 Nov 14 j 06:00	19°≈50'07	
minimum elong	-1150 Feb 11 j 06:09	12°≈20'29	15°18'24					
max. Earth dist.	-1150 Feb 14 j 04:20	12°≈25'00	45.32923 AU	conjunction		-1142 Feb 20 j 09:07	21°≈23'55	-16°-13'-41
retrograde	-1150 May 25 j 15:45	14°≈01'28		minimum elong		-1142 Feb 20 j 09:04	21°≈23'55	16°13'42
min. Earth dist.	-1150 Aug 14 j 19:13	13°≈00'07	43.49847 AU	max. Earth dist.		-1142 Feb 22 j 23:45	21°≈27'49	46.72613 AU
opposition	-1150 Aug 17 j 14:59	12°≈56'40	-16°-4'-35	retrograde		-1142 Jun 03 j 21:28	23°≈01'54	
direct	-1150 Nov 06 j 13:01	11°≈53'27		min. Earth dist.		-1142 Aug 24 j 04:54	22°≈01'28	44.88866 AU
				opposition		-1142 Aug 26 j 17:41	21°≈58'27	-16°-59'-19
conjunction	-1149 Feb 12 j 16:03	13°≈29'46	-15°-26'-42	direct		-1142 Nov 15 j 12:54	20°≈56'29	
minimum elong	-1149 Feb 12 j 15:58	13°≈29'46	15°26'43					
max. Earth dist.	-1149 Feb 15 j 12:49	13°≈34'10	45.51659 AU	conjunction		-1141 Feb 21 j 17:46	22°≈29'57	-16°-18'-55



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 17

Attention, astronomical year style is used: The year -1141 in astronomical counting style is the year 1142 BCE in historical counting style.

minimum elong	-1141 Feb 21 j 17:44	22° $\approx$ 29'57	16°18'57	conjunction	-1133 Mar 02 j 09:57	1° $\times$ 04'45	-16°-47'-27
max. Earth dist.	-1141 Feb 24 j 08:20	22° $\approx$ 33'50	46.88197 AU	minimum elong	-1133 Mar 02 j 09:57	1° $\times$ 04'45	16°47'28
retrograde	-1141 Jun 05 j 04:24	24° $\approx$ 07'35		max. Earth dist.	-1133 Mar 04 j 18:19	1° $\times$ 08'09	48.02337 AU
min. Earth dist.	-1141 Aug 25 j 15:13	23° $\approx$ 07'09	45.04376 AU	retrograde	-1133 Jun 13 j 16:51	2° $\times$ 39'56	
opposition	-1141 Aug 28 j 02:11	23° $\approx$ 04'14	-17°-4'-25	min. Earth dist.	-1133 Sep 03 j 11:28	1° $\times$ 40'16	46.17623 AU
direct	-1141 Nov 16 j 22:14	22° $\approx$ 02'24		opposition	-1133 Sep 05 j 15:50	1° $\times$ 37'43	-17°-31'-35
				direct	-1133 Nov 25 j 16:07	0° $\times$ 36'55	
conjunction	-1140 Feb 23 j 02:08	23° $\approx$ 35'31	-16°-23'-46				
minimum elong	-1140 Feb 23 j 02:06	23° $\approx$ 35'31	16°23'47	conjunction	-1132 Mar 02 j 17:26	2° $\times$ 07'47	-16°-49'-31
max. Earth dist.	-1140 Feb 25 j 15:57	23° $\approx$ 39'21	47.03476 AU	minimum elong	-1132 Mar 02 j 17:28	2° $\times$ 07'47	16°49'33
retrograde	-1140 Jun 05 j 09:53	25° $\approx$ 12'48		max. Earth dist.	-1132 Mar 04 j 23:29	2° $\times$ 11'02	48.14851 AU
min. Earth dist.	-1140 Aug 25 j 23:05	24° $\approx$ 12'31	45.19589 AU	retrograde	-1132 Jun 14 j 03:00	3° $\times$ 42'41	
opposition	-1140 Aug 28 j 10:23	24° $\approx$ 09'35	-17°-9'-7	min. Earth dist.	-1132 Sep 03 j 19:29	2° $\times$ 43'05	46.29914 AU
direct	-1140 Nov 17 j 08:58	23° $\approx$ 07'52		opposition	-1132 Sep 05 j 23:04	2° $\times$ 40'35	-17°-33'-28
				direct	-1132 Nov 25 j 20:53	1° $\times$ 39'53	
conjunction	-1139 Feb 23 j 10:20	24° $\approx$ 40'40	-16°-28'-14				
minimum elong	-1139 Feb 23 j 10:18	24° $\approx$ 40'39	16°28'16	conjunction	-1131 Mar 04 j 01:00	3° $\times$ 10'29	-16°-51'-17
max. Earth dist.	-1139 Feb 25 j 23:00	24° $\approx$ 44'24	47.18476 AU	minimum elong	-1131 Mar 04 j 01:01	3° $\times$ 10'29	16°51'19
retrograde	-1139 Jun 06 j 18:38	26° $\approx$ 17'37		max. Earth dist.	-1131 Mar 06 j 06:37	3° $\times$ 13'42	48.26848 AU
min. Earth dist.	-1139 Aug 27 j 08:22	25° $\approx$ 17'24	45.34548 AU	retrograde	-1131 Jun 15 j 10:36	4° $\times$ 45'06	
opposition	-1139 Aug 29 j 18:30	25° $\approx$ 14'31	-17°-13'-26	min. Earth dist.	-1131 Sep 05 j 04:39	3° $\times$ 45'29	46.41693 AU
direct	-1139 Nov 18 j 17:43	24° $\approx$ 12'56		opposition	-1131 Sep 07 j 06:06	3° $\times$ 43'05	-17°-35'-3
				direct	-1131 Nov 27 j 03:34	2° $\times$ 42'28	
conjunction	-1138 Feb 24 j 18:35	25° $\approx$ 45'25	-16°-32'-19				
minimum elong	-1138 Feb 24 j 18:34	25° $\approx$ 45'25	16°32'20	conjunction	-1130 Mar 05 j 08:26	4° $\times$ 12'49	-16°-52'-46
max. Earth dist.	-1138 Feb 27 j 07:38	25° $\approx$ 49'10	47.33235 AU	minimum elong	-1130 Mar 05 j 08:29	4° $\times$ 12'49	16°52'48
retrograde	-1138 Jun 08 j 04:01	27° $\approx$ 22'03		max. Earth dist.	-1130 Mar 07 j 12:33	4° $\times$ 15'56	48.38376 AU
min. Earth dist.	-1138 Aug 28 j 17:03	26° $\approx$ 21'56	45.49236 AU	retrograde	-1130 Jun 16 j 15:41	5° $\times$ 47'08	
opposition	-1138 Aug 31 j 02:24	26° $\approx$ 19'06	-17°-17'-22	min. Earth dist.	-1130 Sep 06 j 11:33	4° $\times$ 47'36	46.53014 AU
direct	-1138 Nov 20 j 00:56	25° $\approx$ 17'39		opposition	-1130 Sep 08 j 12:52	4° $\times$ 45'12	-17°-36'-19
				direct	-1130 Nov 28 j 11:29	3° $\times$ 44'40	
conjunction	-1137 Feb 26 j 02:34	26° $\approx$ 49'51	-16°-36'-2				
minimum elong	-1137 Feb 26 j 02:33	26° $\approx$ 49'51	16°36'04	conjunction	-1129 Mar 06 j 15:35	5° $\times$ 14'45	-16°-53'-56
max. Earth dist.	-1137 Feb 28 j 13:53	26° $\approx$ 53'28	47.47730 AU	minimum elong	-1129 Mar 06 j 15:38	5° $\times$ 14'46	16°53'57
retrograde	-1137 Jun 09 j 14:38	28° $\approx$ 26'10		max. Earth dist.	-1129 Mar 08 j 18:16	5° $\times$ 17'47	48.49463 AU
min. Earth dist.	-1137 Aug 30 j 00:45	27° $\approx$ 26'11	45.63657 AU	retrograde	-1129 Jun 17 j 21:11	6° $\times$ 48'49	
opposition	-1137 Sep 01 j 10:04	27° $\approx$ 23'22	-17°-20'-54	min. Earth dist.	-1129 Sep 07 j 19:59	5° $\times$ 49'17	46.63938 AU
direct	-1137 Nov 21 j 05:51	26° $\approx$ 22'03		opposition	-1129 Sep 09 j 19:33	5° $\times$ 46'58	-17°-37'-16
				direct	-1129 Nov 29 j 20:13	4° $\times$ 46'31	
conjunction	-1136 Feb 27 j 10:29	27° $\approx$ 53'58	-16°-39'-24				
minimum elong	-1136 Feb 27 j 10:29	27° $\approx$ 53'58	16°39'25	conjunction	-1128 Mar 06 j 22:45	6° $\times$ 16'22	-16°-54'-47
max. Earth dist.	-1136 Feb 29 j 21:49	27° $\approx$ 57'35	47.61940 AU	minimum elong	-1128 Mar 06 j 22:48	6° $\times$ 16'22	16°54'49
retrograde	-1136 Jun 09 j 20:49	29° $\approx$ 29'59		max. Earth dist.	-1128 Mar 09 j 01:29	6° $\times$ 19'23	48.60196 AU
min. Earth dist.	-1136 Aug 30 j 10:14	28° $\approx$ 30'04	45.77765 AU	retrograde	-1128 Jun 18 j 03:41	7° $\times$ 50'09	
opposition	-1136 Sep 01 j 17:46	28° $\approx$ 27'20	-17°-24'-5	min. Earth dist.	-1128 Sep 08 j 03:08	6° $\times$ 50'41	46.74512 AU
direct	-1136 Nov 21 j 14:09	27° $\approx$ 26'10		opposition	-1128 Sep 10 j 02:03	6° $\times$ 48'25	-17°-37'-54
				direct	-1128 Nov 30 j 03:58	5° $\times$ 48'02	
conjunction	-1135 Feb 27 j 18:16	28° $\approx$ 57'49	-16°-42'-24				
minimum elong	-1135 Feb 27 j 18:16	28° $\approx$ 57'49	16°42'26	conjunction	-1127 Mar 08 j 05:34	7° $\times$ 17'39	-16°-55'-20
max. Earth dist.	-1135 Mar 02 j 04:35	29° $\approx$ 01'22	47.75831 AU	minimum elong	-1127 Mar 08 j 05:37	7° $\times$ 17'40	16°55'20
	-1135 Apr 15 j 04:35	0° $\times$		max. Earth dist.	-1127 Mar 10 j 06:24	7° $\times$ 20'33	48.70609 AU
retrograde	-1135 Jun 11 j 01:59	0° $\times$ 33'33		retrograde	-1127 Jun 19 j 13:20	8° $\times$ 51'13	
	-1135 Aug 08 j 10:37	30° $\times$		min. Earth dist.	-1127 Sep 09 j 09:58	7° $\times$ 51'49	46.84786 AU
min. Earth dist.	-1135 Aug 31 j 17:51	29° $\approx$ 33'46	45.91507 AU	opposition	-1127 Sep 11 j 08:31	7° $\times$ 49'34	-17°-38'-11
opposition	-1135 Sep 03 j 01:13	29° $\approx$ 31'03	-17°-26'-55	direct	-1127 Dec 01 j 07:46	6° $\times$ 49'17	
direct	-1135 Nov 22 j 23:33	28° $\approx$ 30'01					
	-1134 Feb 28 j 02:44	0° $\times$		conjunction	-1126 Mar 09 j 12:32	8° $\times$ 18'42	-16°-55'-33
conjunction	-1134 Mar 01 j 02:04	0° $\times$ 01'25	-16°-45'-5	minimum elong	-1126 Mar 09 j 12:35	8° $\times$ 18'42	16°55'34
minimum elong	-1134 Mar 01 j 02:06	0° $\times$ 01'25	16°45'06	max. Earth dist.	-1126 Mar 11 j 13:21	8° $\times$ 21'35	48.80723 AU
max. Earth dist.	-1134 Mar 03 j 10:54	0° $\times$ 04'52	47.89312 AU	retrograde	-1126 Jun 20 j 19:43	9° $\times$ 52'01	
retrograde	-1134 Jun 12 j 09:46	1° $\times$ 36'53		min. Earth dist.	-1126 Sep 10 j 17:55	8° $\times$ 52'40	46.94755 AU
min. Earth dist.	-1134 Sep 02 j 03:02	0° $\times$ 37'09	46.04818 AU	opposition	-1126 Sep 12 j 14:45	8° $\times$ 50'30	-17°-38'-10
opposition	-1134 Sep 04 j 08:34	0° $\times$ 34'31	-17°-29'-24	direct	-1126 Dec 02 j 13:45	7° $\times$ 50'19	
	-1134 Oct 05 j 12:55	30° $\times$					
direct	-1134 Nov 24 j 07:42	29° $\approx$ 33'37		conjunction	-1125 Mar 10 j 19:21	9° $\times$ 19'32	-16°-55'-27
	-1133 Jan 11 j 21:27	0° $\times$		minimum elong	-1125 Mar 10 j 19:26	9° $\times$ 19'33	16°55'28
				max. Earth dist.	-1125 Mar 12 j 19:00	9° $\times$ 22'21	48.90554 AU



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 18

Attention, astronomical year style is used: The year -1125 in astronomical counting style is the year 1126 BCE in historical counting style.

retrograde	-1125 Jun 22 j 00:32	10° <del>✕</del> 52'38		direct	-1117 Dec 11 j 22:29	16° <del>✕</del> 51'59	
min. Earth dist.	-1125 Sep 11 j 23:57	9° <del>✕</del> 53'24	47.04424 AU				
opposition	-1125 Sep 13 j 20:55	9° <del>✕</del> 51'14	-17°-37'-49	conjunction	-1116 Mar 19 j 05:43	18° <del>✕</del> 19'40	-16°-42'-1
direct	-1125 Dec 03 j 20:45	8° <del>✕</del> 51'10		minimum elong	-1116 Mar 19 j 05:50	18° <del>✕</del> 19'41	16°42'02
				max. Earth dist.	-1116 Mar 20 j 18:43	18° <del>✕</del> 21'49	49.60039 AU
conjunction	-1124 Mar 11 j 01:51	10° <del>✕</del> 20'13	-16°-55'-3	retrograde	-1116 Jun 30 j 08:35	19° <del>✕</del> 51'01	
minimum elong	-1124 Mar 11 j 01:54	10° <del>✕</del> 20'13	16°55'05	min. Earth dist.	-1116 Sep 20 j 15:25	18° <del>✕</del> 51'57	47.71649 AU
max. Earth dist.	-1124 Mar 13 j 00:22	10° <del>✕</del> 22'58	49.00066 AU	opposition	-1116 Sep 22 j 00:37	18° <del>✕</del> 50'22	-17°-21'-57
retrograde	-1124 Jun 22 j 05:59	11° <del>✕</del> 53'08		direct	-1116 Dec 12 j 03:49	17° <del>✕</del> 50'54	
min. Earth dist.	-1124 Sep 12 j 07:57	10° <del>✕</del> 53'56	47.13763 AU				
opposition	-1124 Sep 14 j 03:09	10° <del>✕</del> 51'51	-17°-37'-9	conjunction	-1115 Mar 20 j 11:50	19° <del>✕</del> 18'26	-16°-39'-12
direct	-1124 Dec 04 j 04:12	9° <del>✕</del> 51'53		minimum elong	-1115 Mar 20 j 11:56	19° <del>✕</del> 18'26	16°39'13
				max. Earth dist.	-1115 Mar 21 j 23:29	19° <del>✕</del> 20'29	49.65583 AU
conjunction	-1123 Mar 12 j 08:37	11° <del>✕</del> 20'46	-16°-54'-21	retrograde	-1115 Jul 01 j 14:12	20° <del>✕</del> 49'35	
minimum elong	-1123 Mar 12 j 08:42	11° <del>✕</del> 20'47	16°54'22	min. Earth dist.	-1115 Sep 21 j 20:33	19° <del>✕</del> 50'34	47.76988 AU
max. Earth dist.	-1123 Mar 14 j 06:54	11° <del>✕</del> 23'30	49.09238 AU	opposition	-1115 Sep 23 j 05:44	19° <del>✕</del> 48'59	-17°-18'-49
retrograde	-1123 Jun 23 j 11:29	12° <del>✕</del> 53'30		direct	-1115 Dec 13 j 08:07	18° <del>✕</del> 49'33	
min. Earth dist.	-1123 Sep 13 j 14:37	11° <del>✕</del> 54'24	47.22712 AU				
opposition	-1123 Sep 15 j 09:04	11° <del>✕</del> 52'21	-17°-36'-11	conjunction	-1114 Mar 21 j 17:50	20° <del>✕</del> 16'57	-16°-36'-5
direct	-1123 Dec 05 j 11:53	10° <del>✕</del> 52'30		minimum elong	-1114 Mar 21 j 17:58	20° <del>✕</del> 16'57	16°36'06
				max. Earth dist.	-1114 Mar 23 j 04:20	20° <del>✕</del> 18'56	49.70822 AU
conjunction	-1122 Mar 13 j 15:15	12° <del>✕</del> 21'13	-16°-53'-22	retrograde	-1114 Jul 02 j 18:36	21° <del>✕</del> 47'56	
minimum elong	-1122 Mar 13 j 15:19	12° <del>✕</del> 21'13	16°53'23	min. Earth dist.	-1114 Sep 23 j 03:31	20° <del>✕</del> 48'54	47.82033 AU
max. Earth dist.	-1122 Mar 15 j 11:14	12° <del>✕</del> 23'48	49.17992 AU	opposition	-1114 Sep 24 j 11:00	20° <del>✕</del> 47'24	-17°-15'-24
retrograde	-1122 Jun 24 j 21:12	13° <del>✕</del> 53'46		direct	-1114 Dec 14 j 14:10	19° <del>✕</del> 48'00	
min. Earth dist.	-1122 Sep 14 j 21:44	12° <del>✕</del> 54'43	47.31218 AU				
opposition	-1122 Sep 16 j 15:01	12° <del>✕</del> 52'44	-17°-34'-56	conjunction	-1113 Mar 22 j 23:49	21° <del>✕</del> 15'16	-16°-32'-42
direct	-1122 Dec 06 j 15:38	11° <del>✕</del> 52'59		minimum elong	-1113 Mar 22 j 23:56	21° <del>✕</del> 15'17	16°32'43
				max. Earth dist.	-1113 Mar 24 j 10:08	21° <del>✕</del> 17'15	49.75783 AU
conjunction	-1121 Mar 14 j 21:55	13° <del>✕</del> 21'33	-16°-52'-7	retrograde	-1113 Jul 03 j 21:54	22° <del>✕</del> 46'06	
minimum elong	-1121 Mar 14 j 22:01	13° <del>✕</del> 21'33	16°52'08	min. Earth dist.	-1113 Sep 24 j 08:50	21° <del>✕</del> 47'08	47.86780 AU
max. Earth dist.	-1121 Mar 16 j 17:28	13° <del>✕</del> 24'06	49.26258 AU	opposition	-1113 Sep 25 j 16:00	21° <del>✕</del> 45'39	-17°-11'-41
retrograde	-1121 Jun 26 j 05:19	14° <del>✕</del> 53'55		direct	-1113 Dec 15 j 21:43	20° <del>✕</del> 46'19	
min. Earth dist.	-1121 Sep 16 j 05:41	13° <del>✕</del> 54'51	47.39199 AU				
opposition	-1121 Sep 17 j 20:52	13° <del>✕</del> 52'59	-17°-33'-26	conjunction	-1112 Mar 23 j 05:37	22° <del>✕</del> 13'28	-16°-29'-2
direct	-1121 Dec 07 j 19:50	12° <del>✕</del> 53'19		minimum elong	-1112 Mar 23 j 05:45	22° <del>✕</del> 13'29	16°29'03
				max. Earth dist.	-1112 Mar 24 j 14:01	22° <del>✕</del> 15'20	49.80453 AU
conjunction	-1120 Mar 15 j 04:31	14° <del>✕</del> 21'43	-16°-50'-36	retrograde	-1112 Jul 04 j 05:15	23° <del>✕</del> 44'11	
minimum elong	-1120 Mar 15 j 04:36	14° <del>✕</del> 21'43	16°50'37	opposition	-1112 Sep 25 j 21:05	22° <del>✕</del> 43'48	-17°-7'-41
max. Earth dist.	-1120 Mar 16 j 22:04	14° <del>✕</del> 24'08	49.34007 AU	min. Earth dist.	-1112 Sep 24 j 14:51	22° <del>✕</del> 45'14	47.91233 AU
retrograde	-1120 Jun 26 j 11:42	15° <del>✕</del> 53'52		direct	-1112 Dec 16 j 01:56	21° <del>✕</del> 44'32	
min. Earth dist.	-1120 Sep 16 j 11:47	14° <del>✕</del> 54'53	47.46645 AU				
opposition	-1120 Sep 18 j 02:37	14° <del>✕</del> 53'01	-17°-31'-40	conjunction	-1111 Mar 24 j 11:30	23° <del>✕</del> 11'36	-16°-25'-5
direct	-1120 Dec 08 j 00:33	13° <del>✕</del> 53'25		minimum elong	-1111 Mar 24 j 11:37	23° <del>✕</del> 11'36	16°25'07
				max. Earth dist.	-1111 Mar 25 j 19:49	23° <del>✕</del> 13'27	49.84797 AU
conjunction	-1119 Mar 16 j 10:55	15° <del>✕</del> 21'38	-16°-48'-51	retrograde	-1111 Jul 05 j 12:26	24° <del>✕</del> 42'12	
minimum elong	-1119 Mar 16 j 11:01	15° <del>✕</del> 21'39	16°48'52	min. Earth dist.	-1111 Sep 25 j 21:36	23° <del>✕</del> 43'15	47.95315 AU
max. Earth dist.	-1119 Mar 18 j 02:49	15° <del>✕</del> 23'58	49.41213 AU	opposition	-1111 Sep 27 j 02:06	23° <del>✕</del> 41'54	-17°-3'-25
retrograde	-1119 Jun 27 j 14:57	16° <del>✕</del> 53'36		direct	-1111 Dec 17 j 05:49	22° <del>✕</del> 42'43	
min. Earth dist.	-1119 Sep 17 j 19:51	15° <del>✕</del> 54'33	47.53560 AU				
opposition	-1119 Sep 19 j 08:24	15° <del>✕</del> 52'49	-17°-29'-38	conjunction	-1110 Mar 25 j 17:28	24° <del>✕</del> 09'42	-16°-20'-53
direct	-1119 Dec 09 j 09:17	14° <del>✕</del> 53'15		minimum elong	-1110 Mar 25 j 17:37	24° <del>✕</del> 09'43	16°20'54
				max. Earth dist.	-1110 Mar 27 j 00:00	24° <del>✕</del> 11'27	49.88757 AU
conjunction	-1118 Mar 17 j 17:27	16° <del>✕</del> 21'17	-16°-46'-50	retrograde	-1110 Jul 06 j 19:42	25° <del>✕</del> 40'11	
minimum elong	-1118 Mar 17 j 17:33	16° <del>✕</del> 21'18	16°46'51	min. Earth dist.	-1110 Sep 27 j 02:44	24° <del>✕</del> 41'19	47.98977 AU
max. Earth dist.	-1118 Mar 19 j 08:47	16° <del>✕</del> 23'35	49.47919 AU	opposition	-1110 Sep 28 j 06:52	24° <del>✕</del> 39'59	-16°-58'-53
retrograde	-1118 Jun 28 j 18:09	17° <del>✕</del> 53'02		direct	-1110 Dec 18 j 08:35	23° <del>✕</del> 40'51	
min. Earth dist.	-1118 Sep 19 j 02:03	16° <del>✕</del> 54'01	47.59985 AU				
opposition	-1118 Sep 20 j 13:46	16° <del>✕</del> 52'18	-17°-27'-21	conjunction	-1109 Mar 26 j 23:22	25° <del>✕</del> 07'47	-16°-16'-27
direct	-1118 Dec 10 j 18:15	15° <del>✕</del> 52'46		minimum elong	-1109 Mar 26 j 23:30	25° <del>✕</del> 07'47	16°16'27
				max. Earth dist.	-1109 Mar 28 j 04:17	25° <del>✕</del> 09'26	49.92250 AU
conjunction	-1117 Mar 18 j 23:40	17° <del>✕</del> 20'38	-16°-44'-34	retrograde	-1109 Jul 07 j 23:42	26° <del>✕</del> 38'10	
minimum elong	-1117 Mar 18 j 23:47	17° <del>✕</del> 20'38	16°44'35	min. Earth dist.	-1109 Sep 28 j 10:09	25° <del>✕</del> 39'15	48.02149 AU
max. Earth dist.	-1117 Mar 20 j 12:44	17° <del>✕</del> 22'47	49.54172 AU	opposition	-1109 Sep 29 j 11:54	25° <del>✕</del> 38'02	-16°-54'-7
retrograde	-1117 Jun 30 j 02:13	18° <del>✕</del> 52'10		direct	-1109 Dec 19 j 14:59	24° <del>✕</del> 38'58	
min. Earth dist.	-1117 Sep 20 j 08:27	17° <del>✕</del> 53'09	47.66002 AU				
opposition	-1117 Sep 21 j 19:13	17° <del>✕</del> 51'29	-17°-24'-48	conjunction	-1108 Mar 27 j 05:14	26° <del>✕</del> 05'49	-16°-11'-46



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 19

Attention, astronomical year style is used: The year -1108 in astronomical counting style is the year 1109 BCE in historical counting style.

minimum elong	-1108 Mar 27 j 05:23	26° <del>✕</del> 05'49	16°11'47	conjunction	-1100 Apr 04 j 02:28	3° <del>Υ</del> 46'00	-15°-25'-42
max. Earth dist.	-1108 Mar 28 j 09:28	26° <del>✕</del> 07'26	49.95241 AU	minimum elong	-1100 Apr 04 j 02:38	3° <del>Υ</del> 46'00	15°25'43
retrograde	-1108 Jul 08 j 02:19	27° <del>✕</del> 36'06		max. Earth dist.	-1100 Apr 04 j 20:37	3° <del>Υ</del> 47'01	50.03472 AU
opposition	-1108 Sep 29 j 16:48	26° <del>✕</del> 36'02	-16°-49'-6	retrograde	-1100 Jul 16 j 01:04	5° <del>Υ</del> 15'32	
min. Earth dist.	-1108 Sep 28 j 15:48	26° <del>✕</del> 37'13	48.04784 AU	opposition	-1100 Oct 07 j 05:30	4° <del>Υ</del> 15'46	-16°00'-6
direct	-1108 Dec 19 j 23:11	25° <del>✕</del> 36'59		min. Earth dist.	-1100 Oct 06 j 12:47	4° <del>Υ</del> 16'33	48.10742 AU
				direct	-1100 Dec 27 j 09:56	3° <del>Υ</del> 16'51	
conjunction	-1107 Mar 28 j 11:03	27° <del>✕</del> 03'46	-16°-6'-52				
minimum elong	-1107 Mar 28 j 11:11	27° <del>✕</del> 03'46	16°06'53	conjunction	-1099 Apr 05 j 08:04	4° <del>Υ</del> 43'13	-15°-18'-47
max. Earth dist.	-1107 Mar 29 j 12:37	27° <del>✕</del> 05'14	49.97700 AU	minimum elong	-1099 Apr 05 j 08:15	4° <del>Υ</del> 43'14	15°18'48
retrograde	-1107 Jul 09 j 09:48	28° <del>✕</del> 33'56		max. Earth dist.	-1099 Apr 06 j 00:58	4° <del>Υ</del> 44'10	50.03005 AU
opposition	-1107 Sep 30 j 21:34	27° <del>✕</del> 33'55	-16°-43'-52	retrograde	-1099 Jul 17 j 05:45	6° <del>Υ</del> 12'43	
min. Earth dist.	-1107 Sep 29 j 22:01	27° <del>✕</del> 35'02	48.06903 AU	opposition	-1099 Oct 08 j 09:57	5° <del>Υ</del> 12'59	-15°-52'-47
direct	-1107 Dec 21 j 03:07	26° <del>✕</del> 34'54		min. Earth dist.	-1099 Oct 07 j 19:26	5° <del>Υ</del> 13'41	48.09980 AU
				direct	-1099 Dec 28 j 14:19	4° <del>Υ</del> 14'06	
conjunction	-1106 Mar 29 j 16:58	28° <del>✕</del> 01'36	-16°-1'-44				
minimum elong	-1106 Mar 29 j 17:08	28° <del>✕</del> 01'37	16°01'46	conjunction	-1098 Apr 06 j 13:50	5° <del>Υ</del> 40'28	-15°-11'-38
max. Earth dist.	-1106 Mar 30 j 18:02	28° <del>✕</del> 03'02	49.99651 AU	minimum elong	-1098 Apr 06 j 14:00	5° <del>Υ</del> 40'29	15°11'39
retrograde	-1106 Jul 10 j 16:05	29° <del>✕</del> 31'40		max. Earth dist.	-1098 Apr 07 j 06:08	5° <del>Υ</del> 41'24	50.02159 AU
min. Earth dist.	-1106 Oct 01 j 04:38	28° <del>✕</del> 32'43	48.08523 AU	retrograde	-1098 Jul 18 j 07:23	7° <del>Υ</del> 09'56	
opposition	-1106 Oct 02 j 02:21	28° <del>✕</del> 31'41	-16°-38'-24	opposition	-1098 Oct 09 j 14:22	6° <del>Υ</del> 10'15	-15°-45'-14
direct	-1106 Dec 22 j 07:47	27° <del>✕</del> 32'41		min. Earth dist.	-1098 Oct 09 j 00:29	6° <del>Υ</del> 10'54	48.08788 AU
				direct	-1098 Dec 29 j 22:19	5° <del>Υ</del> 11'23	
conjunction	-1105 Mar 30 j 22:38	28° <del>✕</del> 59'18	-15°-56'-22				
minimum elong	-1105 Mar 30 j 22:47	28° <del>✕</del> 59'18	15°56'22	conjunction	-1097 Apr 07 j 19:23	6° <del>Υ</del> 37'45	-15°-4'-15
max. Earth dist.	-1105 Mar 31 j 21:59	29° <del>✕</del> 00'38	50.01148 AU	minimum elong	-1097 Apr 07 j 19:35	6° <del>Υ</del> 37'46	15°04'16
	-1105 May 18 j 13:26	0° <del>Υ</del>		max. Earth dist.	-1097 Apr 08 j 09:07	6° <del>Υ</del> 38'32	50.00844 AU
retrograde	-1105 Jul 11 j 21:57	0° <del>Υ</del> 29'14		retrograde	-1097 Jul 19 j 12:56	8° <del>Υ</del> 07'12	
	-1105 Sep 04 j 21:06	30° <del>✕</del>		opposition	-1097 Oct 10 j 18:52	7° <del>Υ</del> 07'33	-15°-37'-27
min. Earth dist.	-1105 Oct 02 j 09:27	29° <del>✕</del> 30'18	48.09720 AU	min. Earth dist.	-1097 Oct 10 j 06:34	7° <del>Υ</del> 08'08	48.07106 AU
opposition	-1105 Oct 03 j 06:54	29° <del>✕</del> 29'17	-16°-32'-41	direct	-1097 Dec 31 j 03:28	6° <del>Υ</del> 08'41	
direct	-1105 Dec 23 j 10:59	28° <del>✕</del> 30'17					
				conjunction	-1096 Apr 08 j 01:11	7° <del>Υ</del> 35'03	-14°-56'-39
conjunction	-1104 Mar 31 j 04:14	29° <del>✕</del> 56'50	-15°-50'-45	minimum elong	-1096 Apr 08 j 01:21	7° <del>Υ</del> 35'04	14°56'40
minimum elong	-1104 Mar 31 j 04:24	29° <del>✕</del> 56'51	15°50'47	max. Earth dist.	-1096 Apr 08 j 14:14	7° <del>Υ</del> 35'48	49.99009 AU
max. Earth dist.	-1104 Apr 01 j 02:14	29° <del>✕</del> 58'06	50.02242 AU	retrograde	-1096 Jul 19 j 18:39	9° <del>Υ</del> 04'28	
	-1104 Apr 02 j 11:44	0° <del>Υ</del>		opposition	-1096 Oct 10 j 23:22	8° <del>Υ</del> 04'50	-15°-29'-27
retrograde	-1104 Jul 12 j 01:55	1° <del>Υ</del> 26'41		min. Earth dist.	-1096 Oct 10 j 12:59	8° <del>Υ</del> 05'19	48.04875 AU
opposition	-1104 Oct 03 j 11:32	0° <del>Υ</del> 26'45	-16°-26'-42	direct	-1096 Dec 31 j 08:23	7° <del>Υ</del> 05'58	
min. Earth dist.	-1104 Oct 02 j 16:03	0° <del>Υ</del> 27'40	48.10548 AU				
	-1104 Oct 27 j 20:36	30° <del>✕</del>		conjunction	-1095 Apr 09 j 06:53	8° <del>Υ</del> 32'19	-14°-48'-50
direct	-1104 Dec 23 j 16:28	29° <del>✕</del> 27'46		minimum elong	-1095 Apr 09 j 07:05	8° <del>Υ</del> 32'20	14°48'51
	-1103 Feb 17 j 14:03	0° <del>Υ</del>		max. Earth dist.	-1095 Apr 09 j 17:51	8° <del>Υ</del> 32'57	49.96638 AU
				retrograde	-1095 Jul 21 j 01:41	10° <del>Υ</del> 01'41	
conjunction	-1103 Apr 01 j 09:54	0° <del>Υ</del> 54'15	-15°-44'-53	opposition	-1095 Oct 12 j 03:49	9° <del>Υ</del> 02'03	-15°-21'-14
minimum elong	-1103 Apr 01 j 10:04	0° <del>Υ</del> 54'16	15°44'53	min. Earth dist.	-1095 Oct 11 j 18:04	9° <del>Υ</del> 02'31	48.02102 AU
max. Earth dist.	-1103 Apr 02 j 07:37	0° <del>Υ</del> 55'29	50.03003 AU	direct	-1094 Jan 01 j 11:05	8° <del>Υ</del> 03'10	
retrograde	-1103 Jul 13 j 04:04	2° <del>Υ</del> 24'00					
opposition	-1103 Oct 04 j 16:02	1° <del>Υ</del> 24'05	-16°-20'-27	conjunction	-1094 Apr 10 j 12:37	9° <del>Υ</del> 29'31	-14°-40'-49
min. Earth dist.	-1103 Oct 03 j 20:48	1° <del>Υ</del> 25'00	48.11042 AU	minimum elong	-1094 Apr 10 j 12:47	9° <del>Υ</del> 29'32	14°40'49
direct	-1103 Dec 25 j 00:08	0° <del>Υ</del> 25'07		max. Earth dist.	-1094 Apr 10 j 21:42	9° <del>Υ</del> 30'02	49.93719 AU
				retrograde	-1094 Jul 22 j 06:50	10° <del>Υ</del> 58'50	
conjunction	-1102 Apr 02 j 15:27	1° <del>Υ</del> 51'33	-15°-38'-45	opposition	-1094 Oct 13 j 08:13	9° <del>Υ</del> 59'12	-15°-12'-47
minimum elong	-1102 Apr 02 j 15:37	1° <del>Υ</del> 51'33	15°38'46	min. Earth dist.	-1094 Oct 13 j 00:48	9° <del>Υ</del> 59'33	47.98811 AU
max. Earth dist.	-1102 Apr 03 j 11:08	1° <del>Υ</del> 52'40	50.03448 AU	direct	-1093 Jan 02 j 15:44	9° <del>Υ</del> 00'16	
retrograde	-1102 Jul 14 j 09:57	3° <del>Υ</del> 21'13					
opposition	-1102 Oct 05 j 20:29	2° <del>Υ</del> 21'21	-16°-13'-56	conjunction	-1093 Apr 11 j 18:21	10° <del>Υ</del> 26'38	-14°-32'-33
min. Earth dist.	-1102 Oct 05 j 02:23	2° <del>Υ</del> 22'13	48.11244 AU	minimum elong	-1093 Apr 11 j 18:32	10° <del>Υ</del> 26'38	14°32'34
direct	-1102 Dec 26 j 04:46	1° <del>Υ</del> 22'23		max. Earth dist.	-1093 Apr 12 j 02:51	10° <del>Υ</del> 27'07	49.90325 AU
				retrograde	-1093 Jul 23 j 09:01	11° <del>Υ</del> 55'54	
conjunction	-1101 Apr 03 j 21:05	2° <del>Υ</del> 48'47	-15°-32'-21	opposition	-1093 Oct 14 j 12:34	10° <del>Υ</del> 56'14	-15°-4'-6
minimum elong	-1101 Apr 03 j 21:16	2° <del>Υ</del> 48'48	15°32'21	min. Earth dist.	-1093 Oct 14 j 05:38	10° <del>Υ</del> 56'34	47.95058 AU
max. Earth dist.	-1101 Apr 04 j 16:43	2° <del>Υ</del> 49'54	50.03602 AU	direct	-1092 Jan 03 j 22:53	9° <del>Υ</del> 57'16	
retrograde	-1101 Jul 15 j 16:37	4° <del>Υ</del> 18'23					
min. Earth dist.	-1101 Oct 06 j 08:12	3° <del>Υ</del> 19'22	48.11144 AU	conjunction	-1092 Apr 11 j 23:44	11° <del>Υ</del> 23'38	-14°-24'-4
opposition	-1101 Oct 07 j 01:02	3° <del>Υ</del> 18'34	-16°-7'-9	minimum elong	-1092 Apr 11 j 23:55	11° <del>Υ</del> 23'39	14°24'04
direct	-1101 Dec 27 j 08:42	2° <del>Υ</del> 19'38		max. Earth dist.	-1092 Apr 12 j 06:00	11° <del>Υ</del> 24'00	49.86500 AU



## Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 20

Attention, astronomical year style is used: The year -1092 in astronomical counting style is the year 1093 BCE in historical counting style.

retrograde	-1092 Jul	23 j 14:17	12°♊52'54		direct	-1083 Jan	11 j 13:05	18°♊32'06	
opposition	-1092 Oct	14 j 16:59	11°♊53'13	-14°-55'-11					
min. Earth dist.	-1092 Oct	14 j 11:26	11°♊53'29	47.90915 AU	conjunction	-1083 Apr	21 j 03:33	19°♊59'10	-12°-56'-39
direct	-1091 Jan	04 j 03:39	10°♊54'13		minimum elong	-1083 Apr	21 j 03:44	19°♊59'11	12°56'39
					max. Earth dist.	-1083 Apr	20 j 23:12	19°♊58'55	49.36257 AU
conjunction	-1091 Apr	13 j 05:27	12°♊20'36	-14°-15'-20	retrograde	-1083 Aug	01 j 15:22	21°♊28'46	
minimum elong	-1091 Apr	13 j 05:38	12°♊20'36	14°15'21	opposition	-1083 Oct	23 j 08:32	20°♊29'05	-13°-23'-27
max. Earth dist.	-1091 Apr	13 j 11:26	12°♊20'56	49.82298 AU	min. Earth dist.	-1083 Oct	23 j 13:24	20°♊28'51	47.37602 AU
retrograde	-1091 Jul	24 j 19:32	13°♊49'51		direct	-1082 Jan	12 j 20:11	19°♊29'50	
opposition	-1091 Oct	15 j 21:16	12°♊50'10	-14°-46'00					
min. Earth dist.	-1091 Oct	15 j 17:05	12°♊50'21	47.86409 AU	conjunction	-1082 Apr	22 j 09:33	20°♊57'00	-12°-45'-46
direct	-1090 Jan	05 j 08:40	11°♊51'07		minimum elong	-1082 Apr	22 j 09:45	20°♊57'01	12°45'47
					max. Earth dist.	-1082 Apr	22 j 02:32	20°♊56'36	49.28449 AU
conjunction	-1090 Apr	14 j 11:05	13°♊17'33	-14°-6'-22	retrograde	-1082 Aug	02 j 20:24	22°♊26'40	
minimum elong	-1090 Apr	14 j 11:17	13°♊17'33	14°06'22	opposition	-1082 Oct	24 j 13:08	21°♊26'55	-13°-12'-4
max. Earth dist.	-1090 Apr	14 j 15:30	13°♊17'47	49.77774 AU	min. Earth dist.	-1082 Oct	24 j 19:47	21°♊26'36	47.29406 AU
retrograde	-1090 Jul	26 j 03:28	14°♊46'47		direct	-1081 Jan	14 j 01:45	20°♊27'36	
opposition	-1090 Oct	17 j 01:33	13°♊47'06	-14°-36'-34					
min. Earth dist.	-1090 Oct	16 j 21:31	13°♊47'17	47.81595 AU	conjunction	-1081 Apr	23 j 15:30	21°♊54'51	-12°-34'-40
direct	-1089 Jan	06 j 10:18	12°♊48'02		minimum elong	-1081 Apr	23 j 15:42	21°♊54'51	12°34'41
					max. Earth dist.	-1081 Apr	23 j 07:59	21°♊54'25	49.20165 AU
conjunction	-1089 Apr	15 j 16:34	14°♊14'31	-13°-57'-8	retrograde	-1081 Aug	04 j 00:11	23°♊24'34	
minimum elong	-1089 Apr	15 j 16:45	14°♊14'32	13°57'09	opposition	-1081 Oct	25 j 17:42	22°♊24'46	-13°00'-27
max. Earth dist.	-1089 Apr	15 j 19:47	14°♊14'42	49.72936 AU	min. Earth dist.	-1081 Oct	26 j 01:42	22°♊24'23	47.20754 AU
retrograde	-1089 Jul	27 j 09:13	15°♊43'47		direct	-1080 Jan	15 j 08:31	21°♊25'21	
opposition	-1089 Oct	18 j 06:00	14°♊44'06	-14°-26'-52					
min. Earth dist.	-1089 Oct	18 j 03:53	14°♊44'12	47.76478 AU	conjunction	-1080 Apr	23 j 21:28	22°♊52'41	-12°-23'-20
direct	-1088 Jan	07 j 13:36	13°♊45'01		minimum elong	-1080 Apr	23 j 21:40	22°♊52'42	12°23'21
					max. Earth dist.	-1080 Apr	23 j 12:15	22°♊52'09	49.11475 AU
conjunction	-1088 Apr	15 j 22:16	15°♊11'35	-13°-47'-39	retrograde	-1080 Aug	04 j 08:18	24°♊22'28	
minimum elong	-1088 Apr	15 j 22:29	15°♊11'35	13°47'39	opposition	-1080 Oct	25 j 22:08	23°♊22'36	-12°-48'-35
max. Earth dist.	-1088 Apr	16 j 01:12	15°♊11'45	49.67817 AU	min. Earth dist.	-1080 Oct	26 j 06:35	23°♊22'12	47.11728 AU
retrograde	-1088 Jul	27 j 11:08	16°♊40'53		direct	-1079 Jan	15 j 10:49	22°♊23'05	
opposition	-1088 Oct	18 j 10:16	15°♊41'13	-14°-16'-54					
min. Earth dist.	-1088 Oct	18 j 08:19	15°♊41'18	47.71057 AU	conjunction	-1079 Apr	25 j 03:30	23°♊50'32	-12°-11'-45
direct	-1087 Jan	07 j 21:10	14°♊42'07		minimum elong	-1079 Apr	25 j 03:42	23°♊50'33	12°11'45
					max. Earth dist.	-1079 Apr	24 j 16:56	23°♊49'56	49.02418 AU
conjunction	-1087 Apr	17 j 03:53	16°♊08'46	-13°-37'-55	retrograde	-1079 Aug	05 j 16:03	25°♊20'22	
minimum elong	-1087 Apr	17 j 04:04	16°♊08'47	13°37'56	opposition	-1079 Oct	27 j 02:49	24°♊20'27	-12°-36'-27
max. Earth dist.	-1087 Apr	17 j 04:33	16°♊08'49	49.62376 AU	min. Earth dist.	-1079 Oct	27 j 13:14	24°♊19'57	47.02362 AU
retrograde	-1087 Jul	28 j 16:11	17°♊38'08		direct	-1078 Jan	16 j 13:17	23°♊20'50	
opposition	-1087 Oct	19 j 14:41	16°♊38'29	-14°-6'-41					
min. Earth dist.	-1087 Oct	19 j 14:12	16°♊38'30	47.65298 AU	conjunction	-1078 Apr	26 j 09:38	24°♊48'25	-11°-59'-55
direct	-1086 Jan	09 j 02:36	15°♊39'23		minimum elong	-1078 Apr	26 j 09:50	24°♊48'26	11°59'56
					max. Earth dist.	-1078 Apr	25 j 22:41	24°♊47'47	48.93053 AU
conjunction	-1086 Apr	18 j 09:47	17°♊06'08	-13°-27'-56	retrograde	-1078 Aug	06 j 18:57	26°♊18'20	
minimum elong	-1086 Apr	18 j 10:00	17°♊06'09	13°27'56	opposition	-1078 Oct	28 j 07:19	25°♊18'20	-12°-24'-3
max. Earth dist.	-1086 Apr	18 j 10:07	17°♊06'10	49.56556 AU	min. Earth dist.	-1078 Oct	28 j 17:47	25°♊17'50	46.92699 AU
retrograde	-1086 Jul	29 j 22:08	18°♊35'34		direct	-1077 Jan	17 j 20:30	24°♊18'38	
opposition	-1086 Oct	20 j 19:02	17°♊35'56	-13°-56'-13					
min. Earth dist.	-1086 Oct	20 j 20:13	17°♊35'53	47.59118 AU	conjunction	-1077 Apr	27 j 15:38	25°♊46'22	-11°-47'-50
direct	-1085 Jan	10 j 07:05	16°♊36'50		minimum elong	-1077 Apr	27 j 15:51	25°♊46'23	11°47'50
					max. Earth dist.	-1077 Apr	27 j 02:38	25°♊45'37	48.83409 AU
conjunction	-1085 Apr	19 j 15:37	18°♊03'41	-13°-17'-44	retrograde	-1077 Aug	07 j 23:10	27°♊16'23	
minimum elong	-1085 Apr	19 j 15:48	18°♊03'41	13°17'44	opposition	-1077 Oct	29 j 12:03	26°♊16'21	-12°-11'-23
max. Earth dist.	-1085 Apr	19 j 13:58	18°♊03'35	49.50303 AU	min. Earth dist.	-1077 Oct	29 j 23:47	26°♊15'47	46.82777 AU
retrograde	-1085 Jul	31 j 06:11	19°♊33'11		direct	-1076 Jan	19 j 02:37	25°♊16'34	
opposition	-1085 Oct	21 j 23:28	18°♊33'33	-13°-45'-32					
min. Earth dist.	-1085 Oct	22 j 01:16	18°♊33'28	47.52476 AU	conjunction	-1076 Apr	27 j 21:46	26°♊44'28	-11°-35'-29
direct	-1084 Jan	11 j 08:56	17°♊34'25		minimum elong	-1076 Apr	27 j 21:58	26°♊44'28	11°35'30
					max. Earth dist.	-1076 Apr	27 j 08:46	26°♊43'43	48.73500 AU
conjunction	-1084 Apr	19 j 21:26	19°♊01'23	-13°-7'-18	retrograde	-1076 Aug	08 j 03:53	28°♊14'37	
minimum elong	-1084 Apr	19 j 21:39	19°♊01'23	13°07'18	opposition	-1076 Oct	29 j 16:53	27°♊14'31	-11°-58'-27
max. Earth dist.	-1084 Apr	19 j 17:58	19°♊01'11	49.43540 AU	min. Earth dist.	-1076 Oct	30 j 05:45	27°♊13'54	46.72570 AU
retrograde	-1084 Jul	31 j 12:31	20°♊30'56		direct	-1075 Jan	19 j 08:48	26°♊14'41	
opposition	-1084 Oct	22 j 04:08	19°♊31'17	-13°-34'-36					
min. Earth dist.	-1084 Oct	22 j 08:18	19°♊31'05	47.45306 AU	conjunction	-1075 Apr	29 j 04:02	27°♊42'45	-11°-22'-52



## Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 21

Attention, astronomical year style is used: The year -1075 in astronomical counting style is the year 1076 BCE in historical counting style.

minimum elong	-1075 Apr 29 j 04:15	27°Y42'46	11°22'52	max. Earth dist.	-1067 May 06 j 07:26	5°836'44	47.66104 AU
max. Earth dist.	-1075 Apr 28 j 13:23	27°Y41'54	48.63312 AU				
retrograde	-1075 Aug 09 j 11:55	29°Y13'03		conjunction	-1067 May 07 j 10:17	5°838'18	-9°-33'-16
opposition	-1075 Oct 30 j 21:32	28°Y12'56	-11°-45'-15	minimum elong	-1067 May 07 j 10:28	5°838'19	9°33'17
min. Earth dist.	-1075 Oct 31 j 10:49	28°Y12'17	46.62064 AU	retrograde	-1067 Aug 17 j 15:01	7°810'00	
direct	-1074 Jan 20 j 11:32	27°Y13'02		opposition	-1067 Nov 07 j 15:02	6°809'19	-9°-50'-33
				min. Earth dist.	-1067 Nov 08 j 15:20	6°808'08	45.61886 AU
conjunction	-1074 Apr 30 j 10:29	28°Y41'18	-11°-10'00	direct	-1066 Jan 28 j 06:55	5°808'35	
minimum elong	-1074 Apr 30 j 10:41	28°Y41'19	11°10'01				
max. Earth dist.	-1074 Apr 29 j 18:21	28°Y40'22	48.52773 AU	conjunction	-1066 May 08 j 17:34	6°838'43	-9°-18'-27
	-1074 Jul 08 j 09:11	0°8		minimum elong	-1066 May 07 j 17:45	6°838'44	9°18'27
retrograde	-1074 Aug 10 j 19:24	0°811'45		max. Earth dist.	-1066 May 07 j 14:37	6°837'09	47.52084 AU
	-1074 Sep 13 j 06:04	30°R9		retrograde	-1066 Aug 18 j 19:07	8°810'38	
opposition	-1074 Nov 01 j 02:32	29°Y11'37	-11°-31'-47	opposition	-1066 Nov 08 j 20:40	7°809'52	-9°-35'-2
min. Earth dist.	-1074 Nov 01 j 18:00	29°Y10'52	46.51179 AU	min. Earth dist.	-1066 Nov 09 j 21:51	7°808'38	45.47574 AU
direct	-1073 Jan 21 j 15:16	28°Y11'39		direct	-1065 Jan 29 j 15:13	6°809'00	
				max. Earth dist.	-1065 May 08 j 20:02	7°837'43	47.37792 AU
conjunction	-1073 May 01 j 16:58	29°Y40'08	-10°-56'-54				
minimum elong	-1073 May 01 j 17:11	29°Y40'09	10°56'54	conjunction	-1065 May 10 j 00:37	7°839'23	-9°-3'-22
max. Earth dist.	-1073 May 01 j 00:15	29°Y39'11	48.41832 AU	minimum elong	-1065 May 10 j 00:47	7°839'24	9°03'23
	-1073 May 16 j 04:46	0°8		retrograde	-1065 Aug 20 j 03:20	9°811'33	
retrograde	-1073 Aug 12 j 00:33	1°810'46		opposition	-1065 Nov 10 j 02:19	8°810'40	-9°-19'-14
opposition	-1073 Nov 02 j 07:29	0°810'35	-11°-18'-4	min. Earth dist.	-1065 Nov 11 j 03:50	8°809'25	45.33006 AU
min. Earth dist.	-1073 Nov 02 j 23:27	0°809'49	46.39850 AU	direct	-1064 Jan 30 j 19:22	7°809'40	
	-1073 Nov 11 j 12:03	30°R9		max. Earth dist.	-1064 May 09 j 02:20	8°838'37	47.23232 AU
direct	-1072 Jan 22 j 21:38	29°Y10'33					
	-1072 Apr 02 j 14:01	0°8		conjunction	-1064 May 10 j 08:01	8°840'22	-8°-48'-1
conjunction	-1072 May 01 j 23:35	0°839'16	-10°-43'-33	minimum elong	-1064 May 10 j 08:12	8°840'22	8°48'02
minimum elong	-1072 May 01 j 23:47	0°839'17	10°43'34	retrograde	-1064 Aug 20 j 12:08	10°812'46	
max. Earth dist.	-1072 May 01 j 04:08	0°838'09	48.30414 AU	opposition	-1064 Nov 10 j 08:08	9°811'48	-9°-3'-9
retrograde	-1072 Aug 12 j 06:46	2°810'04		min. Earth dist.	-1064 Nov 11 j 11:28	9°810'28	45.18171 AU
opposition	-1072 Nov 02 j 12:34	1°809'50	-11°-4'-6	direct	-1063 Jan 30 j 23:13	8°810'41	
min. Earth dist.	-1072 Nov 03 j 06:31	1°808'58	46.28032 AU	max. Earth dist.	-1063 May 10 j 09:30	9°839'55	47.08408 AU
direct	-1071 Jan 23 j 03:19	0°809'43					
max. Earth dist.	-1071 May 02 j 10:18	1°837'29	48.18484 AU	conjunction	-1063 May 11 j 15:39	9°841'41	-8°-32'-24
				minimum elong	-1063 May 11 j 15:49	9°841'42	8°32'25
conjunction	-1071 May 03 j 06:31	1°838'39	-10°-29'-59	retrograde	-1063 Aug 21 j 20:37	11°814'21	
minimum elong	-1071 May 03 j 06:44	1°838'40	10°30'00	opposition	-1063 Nov 11 j 14:00	10°813'18	-8°-46'-47
retrograde	-1071 Aug 13 j 11:08	3°809'38		min. Earth dist.	-1063 Nov 12 j 17:32	10°811'57	45.03041 AU
opposition	-1071 Nov 03 j 17:48	2°809'20	-10°-49'-54	direct	-1062 Feb 01 j 04:58	9°812'04	
min. Earth dist.	-1071 Nov 04 j 13:12	2°808'23	46.15684 AU				
direct	-1070 Jan 24 j 10:34	1°809'06		conjunction	-1062 May 12 j 23:17	10°843'25	-8°-16'-31
				minimum elong	-1062 May 12 j 23:28	10°843'25	8°16'31
conjunction	-1070 May 04 j 13:22	2°838'16	-10°-16'-10	max. Earth dist.	-1062 May 11 j 14:48	10°841'30	46.93251 AU
minimum elong	-1070 May 04 j 13:33	2°838'16	10°16'10	retrograde	-1062 Aug 23 j 04:30	12°816'21	
max. Earth dist.	-1070 May 03 j 15:02	2°836'58	48.06048 AU	opposition	-1062 Nov 12 j 20:03	11°815'13	-8°-30'-8
retrograde	-1070 Aug 14 j 19:38	4°809'25		min. Earth dist.	-1062 Nov 14 j 01:29	11°813'46	44.87561 AU
opposition	-1070 Nov 04 j 22:56	3°809'02	-10°-35'-27	direct	-1061 Feb 02 j 11:19	10°813'51	
min. Earth dist.	-1070 Nov 05 j 19:09	3°808'03	46.02850 AU	max. Earth dist.	-1061 May 12 j 22:21	11°843'36	46.77704 AU
direct	-1069 Jan 25 j 13:53	2°808'42					
conjunction	-1069 May 05 j 20:18	3°838'05	-10°-2'-7	conjunction	-1061 May 14 j 07:17	11°845'33	-8°00'-22
minimum elong	-1069 May 05 j 20:30	3°838'06	10°02'08	minimum elong	-1061 May 14 j 07:27	11°845'33	8°00'22
max. Earth dist.	-1069 May 04 j 20:21	3°836'42	47.93130 AU	retrograde	-1061 Aug 24 j 09:09	13°818'46	
retrograde	-1069 Aug 16 j 04:56	5°809'25		opposition	-1061 Nov 14 j 02:18	12°817'32	-8°-13'-13
opposition	-1069 Nov 06 j 04:19	4°808'56	-10°-20'-45	min. Earth dist.	-1061 Nov 15 j 08:52	12°816'02	44.71652 AU
min. Earth dist.	-1069 Nov 07 j 02:44	4°807'51	45.89568 AU	direct	-1060 Feb 03 j 19:54	11°816'02	
direct	-1068 Jan 26 j 16:33	3°808'28		max. Earth dist.	-1060 May 13 j 04:08	12°845'59	46.61707 AU
max. Earth dist.	-1068 May 05 j 02:40	4°836'40	47.79805 AU				
				conjunction	-1060 May 14 j 15:15	12°848'04	-7°-43'-58
conjunction	-1068 May 06 j 03:13	4°838'06	-9°-47'-49	minimum elong	-1060 May 14 j 15:25	12°848'05	7°43'58
minimum elong	-1068 May 06 j 03:25	4°838'06	9°47'49	retrograde	-1060 Aug 24 j 16:52	14°821'36	
retrograde	-1068 Aug 16 j 10:04	6°809'36		opposition	-1060 Nov 14 j 08:40	13°820'15	-7°-56'-2
opposition	-1068 Nov 06 j 09:38	5°809'02	-10°-5'-47	min. Earth dist.	-1060 Nov 15 j 16:19	13°818'41	44.55270 AU
min. Earth dist.	-1068 Nov 07 j 08:14	5°807'56	45.75894 AU	direct	-1059 Feb 04 j 02:12	12°818'35	
direct	-1067 Jan 26 j 23:34	4°808'26		max. Earth dist.	-1059 May 14 j 10:47	13°848'47	46.45196 AU
				conjunction	-1059 May 15 j 23:38	13°850'58	-7°-27'-18



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 22

Attention, astronomical year style is used: The year -1059 in astronomical counting style is the year 1060 BCE in historical counting style.

minimum elong	-1059 May 15 j 23:48	13°♄50'59	7°27'18	conjunction	-1051 May 24 j 23:11	22°♄26'40	-5°-4'-30
	-1059 Jul 09 j 00:12	15°♄		minimum elong	-1051 May 24 j 23:18	22°♄26'41	5°04'30
retrograde	-1059 Aug 26 j 02:26	15°♄24'48		retrograde	-1051 Sep 03 j 22:38	24°♄03'18	
	-1059 Oct 13 j 13:46	15°♄		opposition	-1051 Nov 24 j 00:38	23°♄00'33	-5°-8'-43
opposition	-1059 Nov 15 j 15:14	14°♄23'19	-7°-38'-35	min. Earth dist.	-1051 Nov 25 j 18:18	22°♄58'25	42.90060 AU
min. Earth dist.	-1059 Nov 17 j 01:11	14°♄21'37	44.38373 AU	direct	-1050 Feb 13 j 19:04	21°♄57'06	
direct	-1058 Feb 05 j 06:53	13°♄21'28		max. Earth dist.	-1050 May 24 j 08:58	23°♄30'20	44.79626 AU
max. Earth dist.	-1058 May 15 j 18:13	14°♄51'56	46.28196 AU				
				conjunction	-1050 May 26 j 08:57	23°♄33'18	-4°-45'-24
conjunction	-1058 May 17 j 08:09	14°♄54'12	-7°-10'-24	minimum elong	-1050 May 26 j 09:04	23°♄33'18	4°45'24
minimum elong	-1058 May 17 j 08:19	14°♄54'13	7°10'24	retrograde	-1050 Sep 05 j 07:13	25°♄10'23	
	-1058 May 21 j 09:08	15°♄		opposition	-1050 Nov 25 j 08:40	24°♄07'29	-4°-48'-39
retrograde	-1058 Aug 27 j 11:10	16°♄28'19		min. Earth dist.	-1050 Nov 27 j 03:24	24°♄05'18	42.70359 AU
opposition	-1058 Nov 16 j 21:52	15°♄26'41	-7°-20'-52	direct	-1049 Feb 15 j 03:32	23°♄03'52	
min. Earth dist.	-1058 Nov 18 j 08:11	15°♄24'59	44.20996 AU	max. Earth dist.	-1049 May 25 j 18:04	24°♄37'34	44.59846 AU
	-1058 Dec 09 j 23:21	15°♄					
direct	-1057 Feb 06 j 13:06	14°♄24'39		conjunction	-1049 May 27 j 18:57	24°♄40'36	-4°-26'-1
	-1057 Apr 05 j 10:17	15°♄		minimum elong	-1049 May 27 j 19:04	24°♄40'36	4°26'01
max. Earth dist.	-1057 May 17 j 00:09	15°♄55'20	46.10722 AU	retrograde	-1049 Sep 06 j 16:55	26°♄18'10	
				opposition	-1049 Nov 26 j 17:03	25°♄15'07	-4°-28'-17
conjunction	-1057 May 18 j 16:29	15°♄57'45	-6°-53'-14	min. Earth dist.	-1049 Nov 28 j 13:36	25°♄12'49	42.50307 AU
minimum elong	-1057 May 18 j 16:38	15°♄57'45	6°53'14	direct	-1048 Feb 16 j 10:48	24°♄11'17	
retrograde	-1057 Aug 28 j 19:20	17°♄32'10		max. Earth dist.	-1048 May 26 j 03:13	25°♄45'26	44.39697 AU
opposition	-1057 Nov 18 j 04:44	16°♄30'21	-7°-2'-52				
min. Earth dist.	-1057 Nov 19 j 17:05	16°♄28'33	44.03185 AU	conjunction	-1048 May 28 j 05:21	25°♄48'33	-4°-6'-22
direct	-1056 Feb 07 j 20:46	15°♄28'07		minimum elong	-1048 May 28 j 05:27	25°♄48'34	4°06'22
max. Earth dist.	-1056 May 17 j 08:40	16°♄59'09	45.92837 AU	retrograde	-1048 Sep 07 j 04:57	27°♄26'37	
				opposition	-1048 Nov 27 j 01:25	26°♄23'24	-4°-7'-37
conjunction	-1056 May 19 j 01:17	17°♄01'36	-6°-35'-48	min. Earth dist.	-1048 Nov 28 j 22:23	26°♄21'05	42.29859 AU
minimum elong	-1056 May 19 j 01:27	17°♄01'36	6°35'49	direct	-1047 Feb 16 j 16:40	25°♄19'21	
retrograde	-1056 Aug 29 j 00:31	18°♄36'19		max. Earth dist.	-1047 May 27 j 11:32	26°♄53'54	44.19113 AU
opposition	-1056 Nov 18 j 11:33	17°♄34'21	-6°-44'-35				
min. Earth dist.	-1056 Nov 20 j 00:49	17°♄32'29	43.84989 AU	conjunction	-1047 May 29 j 16:03	26°♄57'10	-3°-46'-26
direct	-1055 Feb 08 j 06:58	16°♄31'54		minimum elong	-1047 May 29 j 16:09	26°♄57'11	3°46'26
max. Earth dist.	-1055 May 18 j 15:24	18°♄03'11	45.74604 AU	retrograde	-1047 Sep 08 j 17:00	28°♄35'43	
				opposition	-1047 Nov 28 j 10:19	27°♄32'18	-3°-46'-40
conjunction	-1055 May 20 j 10:06	18°♄05'46	-6°-18'-6	min. Earth dist.	-1047 Nov 30 j 09:34	27°♄29'52	42.08980 AU
minimum elong	-1055 May 20 j 10:14	18°♄05'46	6°18'05	direct	-1046 Feb 18 j 00:59	26°♄28'01	
retrograde	-1055 Aug 30 j 09:05	19°♄40'49		max. Earth dist.	-1046 May 28 j 22:03	28°♄03'04	43.98099 AU
opposition	-1055 Nov 19 j 18:35	18°♄38'41	-6°-26'00				
min. Earth dist.	-1055 Nov 21 j 08:35	18°♄36'46	43.66482 AU	conjunction	-1046 May 31 j 02:59	28°♄06'24	-3°-26'-14
direct	-1054 Feb 09 j 13:46	17°♄36'01		minimum elong	-1046 May 31 j 03:04	28°♄06'24	3°26'14
max. Earth dist.	-1054 May 19 j 23:30	19°♄07'39	45.56061 AU	retrograde	-1046 Sep 10 j 02:47	29°♄45'24	
				opposition	-1046 Nov 29 j 19:18	28°♄41'47	-3°-25'-25
conjunction	-1054 May 21 j 19:06	19°♄10'17	-6°00'-7	min. Earth dist.	-1046 Dec 01 j 19:10	28°♄39'18	41.87678 AU
minimum elong	-1054 May 21 j 19:14	19°♄10'18	6°00'08	direct	-1045 Feb 19 j 12:44	27°♄37'14	
retrograde	-1054 Aug 31 j 17:47	20°♄45'43		max. Earth dist.	-1045 May 30 j 06:36	29°♄12'42	43.76687 AU
opposition	-1054 Nov 21 j 01:52	19°♄43'24	-6°-7'-8				
min. Earth dist.	-1054 Nov 22 j 17:30	19°♄41'24	43.47699 AU	conjunction	-1045 Jun 01 j 14:00	29°♄16'12	-3°-5'-46
direct	-1053 Feb 10 j 20:12	18°♄40'32		minimum elong	-1045 Jun 01 j 14:05	29°♄16'12	3°05'46
max. Earth dist.	-1053 May 21 j 08:08	20°♄12'33	45.37286 AU		-1045 Jul 01 j 10:16	0°♂	
				retrograde	-1045 Sep 11 j 13:47	0°♂55'41	
conjunction	-1053 May 23 j 04:14	20°♄15'14	-5°-41'-52		-1045 Nov 24 j 15:23	30°♄	
minimum elong	-1053 May 23 j 04:22	20°♄15'14	5°41'51	opposition	-1045 Dec 01 j 04:27	29°♄51'50	-3°-3'-52
retrograde	-1053 Sep 02 j 04:21	21°♄51'02		min. Earth dist.	-1045 Dec 03 j 05:40	29°♄49'17	41.66017 AU
opposition	-1053 Nov 22 j 09:12	20°♄48'34	-5°-47'-58	direct	-1044 Feb 20 j 22:42	28°♄47'00	
min. Earth dist.	-1053 Nov 24 j 00:43	20°♄46'34	43.28703 AU		-1044 May 15 j 10:15	0°♂	
direct	-1052 Feb 12 j 02:30	19°♄45'30		max. Earth dist.	-1044 May 30 j 17:17	0°♂22'59	43.54915 AU
max. Earth dist.	-1052 May 21 j 15:24	21°♄17'52	45.18292 AU				
				conjunction	-1044 Jun 02 j 01:22	0°♂26'32	-2°-45'-1
conjunction	-1052 May 23 j 13:28	21°♄20'40	-5°-23'-19	minimum elong	-1044 Jun 02 j 01:27	0°♂26'33	2°45'00
minimum elong	-1052 May 23 j 13:36	21°♄20'41	5°23'20	retrograde	-1044 Sep 11 j 21:48	2°♂06'33	
retrograde	-1052 Sep 02 j 15:25	22°♄56'53		opposition	-1044 Dec 01 j 13:59	1°♂02'27	-2°-42'-2
opposition	-1052 Nov 22 j 16:54	21°♄54'15	-5°-28'-30	min. Earth dist.	-1044 Dec 03 j 16:38	0°♂59'48	41.44022 AU
min. Earth dist.	-1052 Nov 24 j 10:08	21°♄52'10	43.09499 AU		-1043 Feb 06 j 07:13	30°♄	
direct	-1051 Feb 12 j 09:14	20°♄51'00		direct	-1043 Feb 21 j 09:37	29°♄57'20	
max. Earth dist.	-1051 May 23 j 01:08	22°♄23'51	44.99083 AU		-1043 Mar 08 j 07:20	0°♂	



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 23

Attention, astronomical year style is used: The year -1043 in astronomical counting style is the year 1044 BCE in historical counting style.

max. Earth dist.	-1043 Jun 01 j 03:47	1°II33'47	43.32849 AU	min. Earth dist.	-1036 Dec 13 j 13:21	10°II49'33	39.61237 AU
				direct	-1035 Mar 02 j 19:18	9°II45'13	
conjunction	-1043 Jun 03 j 12:57	1°II37'26	-2°-23'-59	max. Earth dist.	-1035 Jun 11 j 02:31	11°II26'38	41.49405 AU
minimum elong	-1043 Jun 03 j 13:01	1°II37'27	2°23'59				
retrograde	-1043 Sep 13 j 09:20	3°II17'58		conjunction	-1035 Jun 13 j 20:51	11°II31'05	0°34'03
opposition	-1043 Dec 02 j 23:32	2°II13'38	-2°-19'-53	minimum elong	-1035 Jun 13 j 20:50	11°II31'05	0°34'04
min. Earth dist.	-1043 Dec 05 j 02:25	2°II10'57	41.21775 AU	retrograde	-1035 Sep 23 j 21:36	13°II16'44	
direct	-1042 Feb 22 j 18:11	1°II08'12		opposition	-1035 Dec 12 j 16:33	12°II10'29	0°47'57
max. Earth dist.	-1042 Jun 02 j 13:56	2°II45'09	43.10535 AU	min. Earth dist.	-1035 Dec 15 j 03:42	12°II07'16	39.37325 AU
				direct	-1034 Mar 04 j 06:44	11°II02'44	
conjunction	-1042 Jun 05 j 00:47	2°II48'56	-2°-2'-41	max. Earth dist.	-1034 Jun 12 j 16:59	12°II44'56	41.25303 AU
minimum elong	-1042 Jun 05 j 00:51	2°II48'56	2°02'41				
retrograde	-1042 Sep 14 j 23:19	4°II30'00		conjunction	-1034 Jun 15 j 11:42	12°II49'26	0°57'29
opposition	-1042 Dec 04 j 09:38	3°II25'24	-1°-57'-26	minimum elong	-1034 Jun 15 j 11:40	12°II49'26	0°57'31
min. Earth dist.	-1042 Dec 06 j 14:17	3°II22'37	40.99325 AU	retrograde	-1034 Sep 25 j 10:32	14°II35'49	
direct	-1041 Feb 24 j 01:09	2°II19'41		opposition	-1034 Dec 14 j 05:25	13°II29'18	1°12'44
max. Earth dist.	-1041 Jun 04 j 02:06	3°II57'15	42.88048 AU	min. Earth dist.	-1034 Dec 16 j 17:21	13°II26'01	39.13077 AU
				direct	-1033 Mar 05 j 21:15	12°II21'13	
conjunction	-1041 Jun 06 j 12:47	4°II01'02	-1°-41'-7	max. Earth dist.	-1033 Jun 14 j 06:00	14°II04'06	41.00883 AU
minimum elong	-1041 Jun 06 j 12:50	4°II01'02	1°41'07				
retrograde	-1041 Sep 16 j 10:53	5°II42'40		conjunction	-1033 Jun 17 j 02:35	14°II08'46	1°21'11
opposition	-1041 Dec 05 j 19:54	4°II37'50	-1°-34'-42	minimum elong	-1033 Jun 17 j 02:33	14°II08'45	1°21'11
min. Earth dist.	-1041 Dec 08 j 00:21	4°II35'03	40.76720 AU	retrograde	-1033 Sep 27 j 00:40	15°II55'53	
direct	-1040 Feb 25 j 12:22	3°II31'49		opposition	-1033 Dec 15 j 18:31	14°II49'05	1°37'47
max. Earth dist.	-1040 Jun 04 j 12:33	5°II09'55	42.65416 AU	min. Earth dist.	-1033 Dec 18 j 07:20	14°II45'44	38.88543 AU
				direct	-1032 Mar 06 j 10:55	13°II40'39	
conjunction	-1040 Jun 07 j 01:08	5°II13'51	-1°-19'-15	max. Earth dist.	-1032 Jun 14 j 20:30	15°II24'16	40.76170 AU
minimum elong	-1040 Jun 07 j 01:10	5°II13'51	1°19'15				
retrograde	-1040 Sep 16 j 23:49	6°II56'04		conjunction	-1032 Jun 17 j 18:10	15°II29'02	1°45'07
opposition	-1040 Dec 06 j 06:24	5°II51'00	-1°-11'-39	minimum elong	-1032 Jun 17 j 18:07	15°II29'02	1°45'08
min. Earth dist.	-1040 Dec 08 j 12:05	5°II48'08	40.53998 AU	retrograde	-1032 Sep 27 j 14:41	17°II16'57	
direct	-1039 Feb 25 j 23:20	4°II44'42		opposition	-1032 Dec 16 j 08:01	16°II09'50	2°03'06
max. Earth dist.	-1039 Jun 06 j 01:23	6°II23'29	42.42648 AU	min. Earth dist.	-1032 Dec 18 j 22:37	16°II06'21	38.63755 AU
				direct	-1031 Mar 07 j 23:10	15°II01'01	
conjunction	-1039 Jun 08 j 14:03	6°II27'27	0°-57'-8	max. Earth dist.	-1031 Jun 16 j 11:46	16°II45'26	40.51239 AU
minimum elong	-1039 Jun 08 j 14:04	6°II27'27	0°57'09				
retrograde	-1039 Sep 18 j 10:20	8°II10'18		conjunction	-1031 Jun 19 j 10:04	16°II50'17	2°09'17
opposition	-1039 Dec 07 j 17:23	7°II05'00	0°-48'-19	minimum elong	-1031 Jun 19 j 10:00	16°II50'17	2°09'17
min. Earth dist.	-1039 Dec 09 j 23:59	7°II02'04	40.31129 AU	retrograde	-1031 Sep 29 j 06:56	18°II38'59	
direct	-1038 Feb 27 j 12:09	5°II58'26		opposition	-1031 Dec 17 j 21:53	17°II31'33	2°28'41
max. Earth dist.	-1038 Jun 07 j 13:05	7°II37'50	42.19727 AU	min. Earth dist.	-1031 Dec 20 j 12:21	17°II28'04	38.38789 AU
				direct	-1030 Mar 09 j 11:46	16°II22'21	
conjunction	-1038 Jun 10 j 03:01	7°II41'54	0°-34'-44	max. Earth dist.	-1030 Jun 18 j 02:10	18°II07'32	40.26134 AU
minimum elong	-1038 Jun 10 j 03:02	7°II41'54	0°34'44				
retrograde	-1038 Sep 19 j 23:38	9°II25'25		conjunction	-1030 Jun 21 j 02:10	18°II12'32	2°33'40
opposition	-1038 Dec 09 j 04:33	8°II19'54	0°-24'-40	minimum elong	-1030 Jun 21 j 02:05	18°II12'31	2°33'42
min. Earth dist.	-1038 Dec 11 j 11:26	8°II16'57	40.08095 AU	retrograde	-1030 Oct 01 j 01:05	20°II02'03	
direct	-1037 Feb 28 j 22:17	7°II13'04		opposition	-1030 Dec 19 j 12:17	18°II54'17	2°54'31
max. Earth dist.	-1037 Jun 09 j 01:13	8°II53'07	41.96581 AU	min. Earth dist.	-1030 Dec 22 j 04:22	18°II50'42	38.13705 AU
				direct	-1029 Mar 11 j 00:38	17°II44'42	
conjunction	-1037 Jun 11 j 16:33	8°II57'18	0°-12'-6	max. Earth dist.	-1029 Jun 19 j 19:18	19°II30'49	40.00939 AU
minimum elong	-1037 Jun 11 j 16:34	8°II57'18	0°12'06				
behind sun begin	-1037 Jun 11 j 12:14	8°II57'02		conjunction	-1029 Jun 22 j 18:51	19°II35'49	2°58'17
behind sun end	-1037 Jun 11 j 20:53	8°II57'35		minimum elong	-1029 Jun 22 j 18:45	19°II35'48	2°58'18
retrograde	-1037 Sep 21 j 13:30	10°II41'32		retrograde	-1029 Oct 02 j 18:54	21°II26'10	
opposition	-1037 Dec 10 j 16:11	9°II35'47	0°00'-45	opposition	-1029 Dec 21 j 03:01	20°II18'04	3°20'35
min. Earth dist.	-1037 Dec 13 j 01:05	9°II32'43	39.84818 AU	min. Earth dist.	-1029 Dec 23 j 19:01	20°II14'28	37.88564 AU
asc. node	-1037 Dec 22 j 06:00	9°II20'54		direct	-1028 Mar 11 j 16:45	19°II08'06	
direct	-1036 Mar 01 j 07:49	8°II28'39		max. Earth dist.	-1028 Jun 20 j 10:35	20°II55'02	39.75706 AU
max. Earth dist.	-1036 Jun 09 j 14:44	10°II09'27	41.73164 AU				
				conjunction	-1028 Jun 23 j 11:51	21°II00'12	3°23'06
conjunction	-1036 Jun 12 j 06:31	10°II13'42	0°10'54	minimum elong	-1028 Jun 23 j 11:44	21°II00'11	3°23'07
minimum elong	-1036 Jun 12 j 06:30	10°II13'42	0°10'55	retrograde	-1028 Oct 03 j 13:21	22°II51'26	
behind sun begin	-1036 Jun 12 j 01:38	10°II13'24		opposition	-1028 Dec 21 j 18:15	21°II43'00	3°46'53
behind sun end	-1036 Jun 12 j 11:22	10°II14'00		min. Earth dist.	-1028 Dec 24 j 11:01	21°II39'21	37.63417 AU
retrograde	-1036 Sep 22 j 05:07	11°II58'38		direct	-1027 Mar 13 j 07:20	20°II32'40	
opposition	-1036 Dec 11 j 04:10	10°II52'39	0°23'27	max. Earth dist.	-1027 Jun 22 j 04:15	22°II20'34	39.50449 AU



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 24

Attention, astronomical year style is used: The year -1027 in astronomical counting style is the year 1028 BCE in historical counting style.

conjunction	-1027 Jun 25 j 05:32	22°II25'46	3°48'06	max. Earth dist.	-1019 Jul 04 j 14:26	4°☾33'01	37.45074 AU
minimum elong	-1027 Jun 25 j 05:25	22°II25'46	3°48'07				
retrograde	-1027 Oct 05 j 04:22	24°II17'54		conjunction	-1019 Jul 07 j 22:09	4°☾39'06	7°13'25
opposition	-1027 Dec 23 j 10:03	23°II09'11	4°13'23	minimum elong	-1019 Jul 07 j 21:54	4°☾39'05	7°13'26
min. Earth dist.	-1027 Dec 26 j 03:37	23°II05'26	37.38256 AU	retrograde	-1019 Oct 17 j 23:42	6°☾39'25	
direct	-1026 Mar 15 j 00:27	21°II58'28		opposition	-1018 Jan 04 j 11:55	5°☾27'48	7°51'24
max. Earth dist.	-1026 Jun 23 j 21:36	23°II47'18	39.25186 AU	min. Earth dist.	-1018 Jan 07 j 10:46	5°☾23'33	35.33772 AU
				direct	-1018 Mar 26 j 20:42	4°☾13'38	
conjunction	-1026 Jun 26 j 23:34	23°II52'37	4°13'17	max. Earth dist.	-1018 Jul 06 j 12:01	6°☾10'51	37.19044 AU
minimum elong	-1026 Jun 26 j 23:26	23°II52'36	4°13'18				
retrograde	-1026 Oct 06 j 22:14	25°II45'42		conjunction	-1018 Jul 09 j 20:47	6°☾17'03	7°39'27
opposition	-1026 Dec 25 j 02:15	24°II36'40	4°40'05	minimum elong	-1018 Jul 09 j 20:32	6°☾17'02	7°39'28
min. Earth dist.	-1026 Dec 27 j 19:44	24°II32'55	37.13085 AU	retrograde	-1018 Oct 19 j 22:27	8°☾18'31	
direct	-1025 Mar 16 j 15:40	23°II25'34		opposition	-1017 Jan 06 j 08:54	7°☾06'28	8°19'05
max. Earth dist.	-1025 Jun 25 j 15:00	25°II15'22	38.99854 AU	min. Earth dist.	-1017 Jan 09 j 09:04	7°☾02'07	35.08014 AU
				direct	-1017 Mar 28 j 14:58	5°☾51'49	
conjunction	-1025 Jun 28 j 18:07	25°II20'48	4°38'38	max. Earth dist.	-1017 Jul 08 j 12:00	7°☾50'18	36.93133 AU
minimum elong	-1025 Jun 28 j 17:58	25°II20'48	4°38'39				
retrograde	-1025 Oct 08 j 16:56	27°II14'53		conjunction	-1017 Jul 11 j 19:54	7°☾56'30	8°05'28
opposition	-1025 Dec 26 j 19:08	26°II05'31	5°06'59	minimum elong	-1017 Jul 11 j 19:38	7°☾56'29	8°05'30
min. Earth dist.	-1025 Dec 29 j 14:26	26°II01'39	36.87836 AU	retrograde	-1017 Oct 21 j 22:25	9°☾59'08	
direct	-1024 Mar 17 j 04:56	24°II54'03		opposition	-1016 Jan 08 j 06:27	8°☾46'40	8°46'46
max. Earth dist.	-1024 Jun 26 j 10:13	26°II44'54	38.74416 AU	min. Earth dist.	-1016 Jan 11 j 05:56	8°☾42'20	34.82410 AU
				direct	-1016 Mar 29 j 12:53	7°☾31'33	
conjunction	-1024 Jun 29 j 13:25	26°II50'23	5°04'08	max. Earth dist.	-1016 Jul 09 j 10:34	9°☾31'12	36.67398 AU
minimum elong	-1024 Jun 29 j 13:15	26°II50'22	5°04'09				
retrograde	-1024 Oct 09 j 12:57	28°II45'28		conjunction	-1016 Jul 12 j 19:44	9°☾37'33	8°31'27
opposition	-1024 Dec 27 j 12:23	27°II35'46	5°34'03	minimum elong	-1016 Jul 12 j 19:27	9°☾37'32	8°31'27
min. Earth dist.	-1024 Dec 30 j 07:38	27°II31'52	36.62460 AU	retrograde	-1016 Oct 23 j 01:09	11°☾41'23	
direct	-1023 Mar 18 j 22:25	26°II23'54		opposition	-1015 Jan 09 j 04:36	10°☾28'30	9°14'23
max. Earth dist.	-1023 Jun 28 j 03:55	28°II15'40	38.48816 AU	min. Earth dist.	-1015 Jan 12 j 04:39	10°☾24'07	34.57036 AU
				direct	-1015 Mar 31 j 09:48	9°☾12'55	
conjunction	-1023 Jul 01 j 09:15	28°II21'21	5°29'47	max. Earth dist.	-1015 Jul 11 j 12:13	11°☾13'57	36.41896 AU
minimum elong	-1023 Jul 01 j 09:05	28°II21'21	5°29'48				
	-1023 Sep 05 j 15:16	0°☾		conjunction	-1015 Jul 14 j 20:23	11°☾20'18	8°57'19
retrograde	-1023 Oct 11 j 11:49	0°☾17'27		minimum elong	-1015 Jul 14 j 20:04	11°☾20'16	8°57'20
	-1023 Nov 16 j 15:55	30°☾II		retrograde	-1015 Oct 25 j 01:35	13°☾25'22	
opposition	-1023 Dec 29 j 06:24	29°II07'24	6°01'17	opposition	-1014 Jan 11 j 03:41	12°☾12'06	9°41'54
min. Earth dist.	-1022 Jan 01 j 03:15	29°II03'24	36.36936 AU	min. Earth dist.	-1014 Jan 14 j 03:36	12°☾07'41	34.31910 AU
direct	-1022 Mar 20 j 14:53	27°II55'06		direct	-1014 Apr 02 j 08:47	10°☾56'04	
max. Earth dist.	-1022 Jun 30 j 00:28	29°II48'00	38.23048 AU	max. Earth dist.	-1014 Jul 13 j 12:45	12°☾58'24	36.16655 AU
conjunction	-1022 Jul 03 j 05:38	29°II53'43	5°55'34	conjunction	-1014 Jul 16 j 21:23	13°☾04'51	9°23'04
minimum elong	-1022 Jul 03 j 05:26	29°II53'42	5°55'34	minimum elong	-1014 Jul 16 j 21:04	13°☾04'50	9°23'04
	-1022 Jul 06 j 18:15	0°☾		retrograde	-1014 Oct 27 j 04:34	15°☾11'12	
retrograde	-1022 Oct 13 j 08:14	1°☾50'51		opposition	-1013 Jan 13 j 03:20	13°☾57'34	10°09'17
opposition	-1022 Dec 31 j 01:01	0°☾40'25	6°28'39	min. Earth dist.	-1013 Jan 16 j 02:54	13°☾53'09	34.07055 AU
min. Earth dist.	-1021 Jan 02 j 22:22	0°☾36'21	36.11254 AU	direct	-1013 Apr 04 j 08:10	12°☾41'06	
	-1021 Jan 30 j 11:41	30°☾II		max. Earth dist.	-1013 Jul 15 j 14:57	14°☾44'50	35.91640 AU
direct	-1021 Mar 22 j 10:43	29°II27'41					
	-1021 May 11 j 11:48	0°☾		conjunction	-1013 Jul 18 j 23:23	14°☾51'20	9°48'39
max. Earth dist.	-1021 Jul 01 j 19:41	1°☾21'34	37.97143 AU	minimum elong	-1013 Jul 18 j 23:03	14°☾51'18	9°48'40
				retrograde	-1013 Oct 29 j 06:37	16°☾58'59	
conjunction	-1021 Jul 05 j 02:30	1°☾27'28	6°21'26	opposition	-1012 Jan 15 j 03:45	15°☾44'59	10°36'30
minimum elong	-1021 Jul 05 j 02:17	1°☾27'27	6°21'27	min. Earth dist.	-1012 Jan 18 j 04:17	15°☾40'28	33.82419 AU
retrograde	-1021 Oct 15 j 06:00	3°☾25'38		direct	-1012 Apr 05 j 07:07	14°☾28'06	
opposition	-1020 Jan 01 j 19:58	2°☾14'49	6°56'09	max. Earth dist.	-1012 Jul 16 j 17:48	16°☾33'14	35.66832 AU
min. Earth dist.	-1020 Jan 04 j 17:58	2°☾10'41	35.85473 AU				
direct	-1020 Mar 23 j 05:32	1°☾01'37		conjunction	-1012 Jul 20 j 02:06	16°☾39'47	10°14'02
max. Earth dist.	-1020 Jul 02 j 16:43	2°☾56'35	37.71126 AU	minimum elong	-1012 Jul 20 j 01:46	16°☾39'45	10°14'03
				retrograde	-1012 Oct 30 j 10:03	18°☾48'47	
conjunction	-1020 Jul 06 j 00:07	3°☾02'35	6°47'24	opposition	-1011 Jan 16 j 05:00	17°☾34'25	11°03'30
minimum elong	-1020 Jul 05 j 23:53	3°☾02'34	6°47'24	min. Earth dist.	-1011 Jan 19 j 04:44	17°☾29'55	33.57972 AU
retrograde	-1020 Oct 16 j 01:41	5°☾01'49		direct	-1011 Apr 07 j 06:52	16°☾17'04	
opposition	-1019 Jan 02 j 15:44	3°☾50'36	7°23'45	max. Earth dist.	-1011 Jul 18 j 20:26	18°☾23'33	35.42170 AU
min. Earth dist.	-1019 Jan 05 j 15:00	3°☾46'22	35.59617 AU				
direct	-1019 Mar 25 j 01:28	2°☾36'56		conjunction	-1011 Jul 22 j 05:36	18°☾30'14	10°39'11



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 25

Attention, astronomical year style is used: The year -1011 in astronomical counting style is the year 1012 BCE in historical counting style.

minimum elong	-1011 Jul 22 j 05:14	18° $\mathfrak{D}$ 30'13	10°39'13	conjunction	-1003 Aug 07 j 12:48	4° $\mathcal{O}$ 24'04	13°45'25
retrograde	-1011 Nov 01 j 13:26	20° $\mathfrak{D}$ 40'35		minimum elong	-1003 Aug 07 j 12:24	4° $\mathcal{O}$ 24'02	13°45'26
opposition	-1010 Jan 18 j 07:11	19° $\mathfrak{D}$ 25'50	11°30'16	retrograde	-1003 Nov 18 j 04:51	6° $\mathcal{O}$ 45'24	
min. Earth dist.	-1010 Jan 21 j 08:08	19° $\mathfrak{D}$ 21'14	33.33683 AU	opposition	-1002 Feb 03 j 06:02	5° $\mathcal{O}$ 27'10	14°48'00
direct	-1010 Apr 09 j 06:18	18° $\mathfrak{D}$ 08'02		min. Earth dist.	-1002 Feb 06 j 02:58	5° $\mathcal{O}$ 22'36	31.49615 AU
max. Earth dist.	-1010 Jul 21 j 01:42	20° $\mathfrak{D}$ 16'01	35.17669 AU	direct	-1002 Apr 24 j 22:26	4° $\mathcal{O}$ 05'31	
				max. Earth dist.	-1002 Aug 06 j 18:52	6° $\mathcal{O}$ 25'20	33.32736 AU
conjunction	-1010 Jul 24 j 09:54	20° $\mathfrak{D}$ 22'41	11°04'04				
minimum elong	-1010 Jul 24 j 09:33	20° $\mathfrak{D}$ 22'40	11°04'04	conjunction	-1002 Aug 09 j 23:09	6° $\mathcal{O}$ 32'12	14°05'46
retrograde	-1010 Nov 03 j 18:24	22° $\mathfrak{D}$ 34'24		minimum elong	-1002 Aug 09 j 22:46	6° $\mathcal{O}$ 32'10	14°05'46
opposition	-1009 Jan 20 j 10:08	21° $\mathfrak{D}$ 19'13	11°56'43	retrograde	-1002 Nov 20 j 15:57	8° $\mathcal{O}$ 54'57	
min. Earth dist.	-1009 Jan 23 j 10:21	21° $\mathfrak{D}$ 14'39	33.09557 AU	opposition	-1001 Feb 05 j 15:49	7° $\mathcal{O}$ 36'20	15°09'30
direct	-1009 Apr 11 j 08:10	20° $\mathfrak{D}$ 00'58		min. Earth dist.	-1001 Feb 08 j 12:33	7° $\mathcal{O}$ 31'45	31.28875 AU
max. Earth dist.	-1009 Jul 23 j 05:27	22° $\mathfrak{D}$ 10'16	34.93335 AU	direct	-1001 Apr 27 j 05:22	6° $\mathcal{O}$ 14'17	
				max. Earth dist.	-1001 Aug 09 j 08:27	8° $\mathcal{O}$ 35'46	33.12005 AU
conjunction	-1009 Jul 26 j 14:50	22° $\mathfrak{D}$ 17'06	11°28'36				
minimum elong	-1009 Jul 26 j 14:27	22° $\mathfrak{D}$ 17'04	11°28'37	conjunction	-1001 Aug 12 j 10:19	8° $\mathcal{O}$ 42'30	14°25'14
retrograde	-1009 Nov 06 j 01:21	24° $\mathfrak{D}$ 30'11		minimum elong	-1001 Aug 12 j 09:56	8° $\mathcal{O}$ 42'27	14°25'15
opposition	-1008 Jan 22 j 13:53	23° $\mathfrak{D}$ 14'34	12°22'50	retrograde	-1001 Nov 23 j 03:46	11° $\mathcal{O}$ 06'39	
min. Earth dist.	-1008 Jan 25 j 14:47	23° $\mathfrak{D}$ 09'55	32.85627 AU	opposition	-1000 Feb 08 j 02:32	9° $\mathcal{O}$ 47'42	15°30'02
direct	-1008 Apr 12 j 09:21	21° $\mathfrak{D}$ 55'49		min. Earth dist.	-1000 Feb 10 j 21:49	9° $\mathcal{O}$ 43'11	31.08744 AU
max. Earth dist.	-1008 Jul 24 j 12:28	24° $\mathfrak{D}$ 06'39	34.69202 AU	direct	-1000 Apr 28 j 15:19	8° $\mathcal{O}$ 25'15	
				max. Earth dist.	-1000 Aug 10 j 20:33	10° $\mathcal{O}$ 48'13	32.91884 AU
conjunction	-1008 Jul 27 j 20:46	24° $\mathfrak{D}$ 13'27	11°52'46				
minimum elong	-1008 Jul 27 j 20:24	24° $\mathfrak{D}$ 13'25	11°52'46	conjunction	-1000 Aug 13 j 22:17	10° $\mathcal{O}$ 54'59	14°43'43
retrograde	-1008 Nov 07 j 08:02	26° $\mathfrak{D}$ 27'53		minimum elong	-1000 Aug 13 j 21:55	10° $\mathcal{O}$ 54'57	14°43'44
opposition	-1007 Jan 23 j 18:26	25° $\mathfrak{D}$ 11'51	12°48'31	retrograde	-1000 Nov 24 j 18:15	13° $\mathcal{O}$ 20'35	
min. Earth dist.	-1007 Jan 26 j 19:06	25° $\mathfrak{D}$ 07'11	32.61921 AU	opposition	-999 Feb 09 j 14:07	12° $\mathcal{O}$ 01'16	15°49'30
direct	-1007 Apr 14 j 14:50	23° $\mathfrak{D}$ 52'36		min. Earth dist.	-999 Feb 12 j 08:39	11° $\mathcal{O}$ 56'47	30.89215 AU
max. Earth dist.	-1007 Jul 26 j 18:25	26° $\mathfrak{D}$ 04'48	34.45338 AU	direct	-999 May 01 j 00:26	10° $\mathcal{O}$ 38'27	
				max. Earth dist.	-999 Aug 13 j 11:42	13° $\mathcal{O}$ 03'04	32.72351 AU
conjunction	-1007 Jul 30 j 03:18	26° $\mathfrak{D}$ 11'44	12°16'29				
minimum elong	-1007 Jul 30 j 02:54	26° $\mathfrak{D}$ 11'42	12°16'30	conjunction	-999 Aug 16 j 11:15	13° $\mathcal{O}$ 09'42	15°01'11
retrograde	-1007 Nov 09 j 17:43	28° $\mathfrak{D}$ 27'31		minimum elong	-999 Aug 16 j 10:53	13° $\mathcal{O}$ 09'40	15°01'13
opposition	-1006 Jan 25 j 23:49	27° $\mathfrak{D}$ 11'01	13°13'43		-999 Oct 11 j 06:03	15° $\mathcal{O}$	
min. Earth dist.	-1006 Jan 28 j 23:59	27° $\mathfrak{D}$ 06'22	32.38534 AU	retrograde	-999 Nov 27 j 08:14	15° $\mathcal{O}$ 36'40	
direct	-1006 Apr 16 j 20:40	25° $\mathfrak{D}$ 51'16			-998 Jan 15 j 04:08	15° $\mathcal{R}$ $\mathcal{O}$	
max. Earth dist.	-1006 Jul 29 j 02:46	28° $\mathfrak{D}$ 05'01	34.21807 AU	opposition	-998 Feb 12 j 02:52	14° $\mathcal{O}$ 17'01	16°07'52
				min. Earth dist.	-998 Feb 14 j 20:33	14° $\mathcal{O}$ 12'35	30.70248 AU
conjunction	-1006 Aug 01 j 10:31	28° $\mathfrak{D}$ 11'55	12°39'41	direct	-998 May 03 j 12:41	12° $\mathcal{O}$ 53'51	
minimum elong	-1006 Aug 01 j 10:08	28° $\mathfrak{D}$ 11'52	12°39'41		-998 Aug 07 j 03:13	15° $\mathcal{O}$	
	-1006 Sep 29 j 22:19	0° $\mathcal{O}$		max. Earth dist.	-998 Aug 16 j 01:40	15° $\mathcal{O}$ 19'55	32.53405 AU
retrograde	-1006 Nov 12 j 00:45	0° $\mathcal{O}$ 29'04					
	-1006 Dec 26 j 03:48	30° $\mathcal{R}$ $\mathfrak{D}$		conjunction	-998 Aug 19 j 00:40	15° $\mathcal{O}$ 26'33	15°17'34
opposition	-1005 Jan 28 j 06:09	29° $\mathfrak{D}$ 12'07	13°38'21	minimum elong	-998 Aug 19 j 00:19	15° $\mathcal{O}$ 26'31	15°17'33
min. Earth dist.	-1005 Jan 31 j 06:30	29° $\mathfrak{D}$ 07'25	32.15522 AU	retrograde	-998 Nov 30 j 01:13	17° $\mathcal{O}$ 54'54	
direct	-1005 Apr 19 j 02:28	27° $\mathfrak{D}$ 51'52		opposition	-997 Feb 14 j 16:21	16° $\mathcal{O}$ 34'54	16°25'01
	-1005 Jul 28 j 02:14	0° $\mathcal{O}$		min. Earth dist.	-997 Feb 17 j 08:26	16° $\mathcal{O}$ 30'32	30.51858 AU
max. Earth dist.	-1005 Jul 31 j 11:25	0° $\mathcal{O}$ 07'05	33.98711 AU	direct	-997 May 06 j 02:02	15° $\mathcal{O}$ 11'22	
				max. Earth dist.	-997 Aug 18 j 18:01	17° $\mathcal{O}$ 38'59	32.35036 AU
conjunction	-1005 Aug 03 j 18:27	0° $\mathcal{O}$ 14'00	13°02'17				
minimum elong	-1005 Aug 03 j 18:03	0° $\mathcal{O}$ 13'58	13°02'18	conjunction	-997 Aug 21 j 15:11	17° $\mathcal{O}$ 45'30	15°32'46
retrograde	-1005 Nov 14 j 09:40	2° $\mathcal{O}$ 32'32		minimum elong	-997 Aug 21 j 14:51	17° $\mathcal{O}$ 45'28	15°32'47
opposition	-1004 Jan 30 j 13:03	1° $\mathcal{O}$ 15'08	14°02'20	retrograde	-997 Dec 02 j 15:53	20° $\mathcal{O}$ 15'09	
min. Earth dist.	-1004 Feb 02 j 11:55	1° $\mathcal{O}$ 10'30	31.92988 AU	opposition	-996 Feb 17 j 06:45	18° $\mathcal{O}$ 54'49	16°40'54
	-1004 Apr 01 j 00:29	30° $\mathcal{R}$ $\mathfrak{D}$		min. Earth dist.	-996 Feb 19 j 22:36	18° $\mathcal{O}$ 50'27	30.34041 AU
direct	-1004 Apr 20 j 09:15	29° $\mathfrak{D}$ 54'23		direct	-996 May 07 j 15:18	17° $\mathcal{O}$ 30'56	
	-1004 May 09 j 10:56	0° $\mathcal{O}$		max. Earth dist.	-996 Aug 20 j 10:27	19° $\mathcal{O}$ 59'58	32.17292 AU
max. Earth dist.	-1004 Aug 01 j 20:50	2° $\mathcal{O}$ 11'06	33.76115 AU				
				conjunction	-996 Aug 23 j 06:18	20° $\mathcal{O}$ 06'25	15°46'43
conjunction	-1004 Aug 05 j 03:19	2° $\mathcal{O}$ 18'02	13°24'13	minimum elong	-996 Aug 23 j 05:59	20° $\mathcal{O}$ 06'23	15°46'43
minimum elong	-1004 Aug 05 j 02:55	2° $\mathcal{O}$ 18'00	13°24'14	retrograde	-996 Dec 04 j 09:10	22° $\mathcal{O}$ 37'20	
retrograde	-1004 Nov 15 j 18:47	4° $\mathcal{O}$ 37'57		opposition	-995 Feb 18 j 21:59	21° $\mathcal{O}$ 16'40	16°55'26
opposition	-1004 Jan 31 j 21:09	3° $\mathcal{O}$ 20'08	14°25'35	min. Earth dist.	-995 Feb 21 j 11:34	21° $\mathcal{O}$ 12'26	30.16844 AU
min. Earth dist.	-1003 Feb 03 j 20:08	3° $\mathcal{O}$ 15'27	31.70999 AU	direct	-995 May 10 j 06:27	19° $\mathcal{O}$ 52'26	
direct	-1003 Apr 22 j 14:44	1° $\mathcal{O}$ 58'55		max. Earth dist.	-995 Aug 23 j 03:42	22° $\mathcal{O}$ 22'51	32.00197 AU
max. Earth dist.	-1003 Aug 04 j 08:11	4° $\mathcal{O}$ 17'14	33.54112 AU				



## Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 26

Attention, astronomical year style is used: The year -995 in astronomical counting style is the year 996 BCE in historical counting style.

conjunction	-995 Aug 25 j 22:03	22°♏29'12	15°59'21	conjunction	-987 Sep 14 j 22:53	12°♐26'41	16°42'51
minimum elong	-995 Aug 25 j 21:46	22°♏29'11	15°59'22	minimum elong	-987 Sep 14 j 22:52	12°♐26'41	16°42'52
retrograde	-995 Dec 07 j 02:08	25°♏01'21		retrograde	-987 Dec 27 j 09:54	15°♐06'16	
opposition	-994 Feb 21 j 14:12	23°♏40'19	17°08'29	opposition	-986 Mar 14 j 00:06	13°♐43'17	17°49'52
min. Earth dist.	-994 Feb 24 j 03:19	23°♏36'07	30.00318 AU	min. Earth dist.	-986 Mar 15 j 17:36	13°♐40'22	29.00658 AU
direct	-994 May 12 j 20:31	22°♏15'45		direct	-986 Jun 01 j 22:26	12°♐17'05	
max. Earth dist.	-994 Aug 25 j 22:29	24°♏47'34	31.83844 AU	max. Earth dist.	-986 Sep 16 j 00:55	14°♐57'43	30.87527 AU
conjunction	-994 Aug 28 j 14:25	24°♏53'45	16°10'35	conjunction	-986 Sep 17 j 18:57	15°♐01'58	16°40'11
minimum elong	-994 Aug 28 j 14:09	24°♏53'43	16°10'35	minimum elong	-986 Sep 17 j 18:58	15°♐01'58	16°40'11
retrograde	-994 Dec 09 j 19:08	27°♏27'02		retrograde	-986 Dec 30 j 06:00	17°♐42'06	
opposition	-993 Feb 24 j 06:56	26°♏05'41	17°20'00	opposition	-985 Mar 16 j 21:57	16°♐19'00	17°46'13
min. Earth dist.	-993 Feb 26 j 17:18	26°♏01'38	29.84538 AU	min. Earth dist.	-985 Mar 18 j 13:49	16°♐16'12	28.92692 AU
direct	-993 May 15 j 13:02	24°♏40'47		direct	-985 Jun 04 j 19:36	14°♐52'45	
max. Earth dist.	-993 Aug 28 j 16:47	27°♏13'50	31.68291 AU	max. Earth dist.	-985 Sep 18 j 23:37	17°♐34'02	30.80130 AU
conjunction	-993 Aug 31 j 07:19	27°♏19'56	16°20'18	conjunction	-985 Sep 20 j 15:10	17°♐38'02	16°35'38
minimum elong	-993 Aug 31 j 07:05	27°♏19'54	16°20'19	minimum elong	-985 Sep 20 j 15:14	17°♐38'02	16°35'38
retrograde	-993 Dec 12 j 12:00	29°♏54'19		retrograde	-984 Jan 02 j 04:23	20°♐18'37	
opposition	-992 Feb 27 j 00:36	28°♏32'38	17°29'52	opposition	-984 Mar 18 j 20:08	18°♐55'25	17°40'32
min. Earth dist.	-992 Feb 29 j 09:55	28°♏28'39	29.69588 AU	min. Earth dist.	-984 Mar 20 j 08:20	18°♐52'52	28.85686 AU
direct	-992 May 17 j 04:35	27°♏07'25		direct	-984 Jun 06 j 18:18	17°♐29'07	
max. Earth dist.	-992 Aug 30 j 13:44	29°♏41'51	31.53638 AU	max. Earth dist.	-984 Sep 20 j 23:02	20°♐10'58	30.73711 AU
conjunction	-992 Sep 02 j 00:48	29°♏47'38	16°28'26	conjunction	-984 Sep 22 j 11:36	20°♐14'41	16°29'10
minimum elong	-992 Sep 02 j 00:36	29°♏47'37	16°28'26	minimum elong	-984 Sep 22 j 11:41	20°♐14'41	16°29'10
	-992 Sep 07 j 07:11	0°♐		retrograde	-983 Jan 04 j 01:36	22°♐55'37	
retrograde	-992 Dec 14 j 05:38	2°♐23'02		opposition	-983 Mar 21 j 18:47	21°♐32'18	17°32'48
opposition	-991 Feb 28 j 18:55	1°♐01'04	17°37'59	min. Earth dist.	-983 Mar 23 j 05:13	21°♐29'52	28.79641 AU
min. Earth dist.	-991 Mar 03 j 01:22	0°♐57'16	29.55543 AU	direct	-983 Jun 09 j 16:10	20°♐06'00	
	-991 Apr 10 j 09:49	30°♐♏		max. Earth dist.	-983 Sep 23 j 22:42	22°♐48'18	30.68309 AU
direct	-991 May 19 j 22:06	29°♏35'35		conjunction	-983 Sep 25 j 08:05	22°♐51'41	16°20'48
	-991 Jun 27 j 10:49	0°♐		minimum elong	-983 Sep 25 j 08:14	22°♐51'42	16°20'49
max. Earth dist.	-991 Sep 02 j 09:19	2°♐11'08	31.39968 AU	retrograde	-982 Jan 06 j 23:26	25°♐32'51	
conjunction	-991 Sep 04 j 18:43	2°♐16'47	16°34'54	opposition	-982 Mar 24 j 17:31	24°♐09'27	17°23'00
minimum elong	-991 Sep 04 j 18:33	2°♐16'46	16°34'55	min. Earth dist.	-982 Mar 26 j 00:09	24°♐07'17	28.74577 AU
retrograde	-991 Dec 17 j 00:54	4°♐53'11		direct	-982 Jun 12 j 16:09	22°♐43'08	
opposition	-990 Mar 03 j 13:59	3°♐30'56	17°44'16	max. Earth dist.	-982 Sep 26 j 21:47	25°♐25'43	30.63927 AU
min. Earth dist.	-990 Mar 05 j 18:19	3°♐27'16	29.42506 AU	conjunction	-982 Sep 28 j 04:27	25°♐28'50	16°10'33
direct	-990 May 22 j 14:22	2°♐05'13		minimum elong	-982 Sep 28 j 04:37	25°♐28'51	16°10'32
max. Earth dist.	-990 Sep 05 j 07:42	4°♐42'02	31.27356 AU	retrograde	-981 Jan 09 j 19:37	28°♐10'07	
conjunction	-990 Sep 07 j 13:07	4°♐47'20	16°39'37	opposition	-981 Mar 27 j 16:24	26°♐46'38	17°11'09
minimum elong	-990 Sep 07 j 12:59	4°♐47'19	16°39'37	min. Earth dist.	-981 Mar 28 j 20:55	26°♐44'38	28.70531 AU
retrograde	-990 Dec 19 j 18:58	7°♐24'38		direct	-981 Jun 15 j 13:47	25°♐20'20	
opposition	-989 Mar 06 j 09:42	6°♐02'10	17°48'38	max. Earth dist.	-981 Sep 29 j 22:07	28°♐03'13	30.60620 AU
min. Earth dist.	-989 Mar 08 j 11:21	5°♐58'41	29.30495 AU	conjunction	-981 Oct 01 j 00:49	28°♐05'56	15°58'23
direct	-989 May 25 j 10:09	4°♐36'17		minimum elong	-981 Oct 01 j 01:03	28°♐05'57	15°58'23
max. Earth dist.	-989 Sep 08 j 04:17	7°♐14'05	31.15822 AU		-981 Nov 21 j 18:36	0°♏	
conjunction	-989 Sep 10 j 07:57	7°♐19'14	16°42'33	retrograde	-980 Jan 12 j 16:07	0°♏47'12	
minimum elong	-989 Sep 10 j 07:52	7°♐19'13	16°42'33		-980 Mar 07 j 10:00	30°♐♐	
retrograde	-989 Dec 22 j 15:58	9°♐57'22		opposition	-980 Mar 29 j 15:09	29°♐23'40	16°57'15
opposition	-988 Mar 08 j 05:46	8°♐34'42	17°51'03	min. Earth dist.	-980 Mar 30 j 16:01	29°♐21'55	28.67541 AU
min. Earth dist.	-988 Mar 10 j 04:37	8°♐31'25	29.19537 AU	direct	-980 Jun 17 j 13:45	27°♐57'25	
direct	-988 May 27 j 05:02	7°♐08'40			-980 Sep 15 j 03:34	0°♏	
max. Earth dist.	-988 Sep 10 j 03:37	9°♐47'36	31.05353 AU	conjunction	-980 Oct 02 j 20:55	0°♏42'47	15°44'21
conjunction	-988 Sep 12 j 03:23	9°♐52'23	16°43'38	minimum elong	-980 Oct 02 j 21:09	0°♏42'48	15°44'20
minimum elong	-988 Sep 12 j 03:19	9°♐52'23	16°43'37	max. Earth dist.	-980 Oct 01 j 20:52	0°♏40'20	30.58434 AU
retrograde	-988 Dec 24 j 11:27	12°♐31'18		retrograde	-979 Jan 14 j 12:50	3°♏23'58	
opposition	-987 Mar 11 j 02:45	11°♐08'28	17°51'28	opposition	-979 Apr 01 j 14:07	2°♏00'23	16°41'20
min. Earth dist.	-987 Mar 12 j 23:34	11°♐05'19	29.09594 AU	min. Earth dist.	-979 Apr 02 j 11:52	1°♏58'51	28.65697 AU
direct	-987 May 30 j 00:25	9°♐42'21		direct	-979 Jun 20 j 11:05	0°♏34'12	
max. Earth dist.	-987 Sep 13 j 01:18	12°♐22'06	30.95935 AU	conjunction	-979 Oct 05 j 16:45	3°♏19'13	15°28'27



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 27

Attention, astronomical year style is used: The year -979 in astronomical counting style is the year 980 BCE in historical counting style.

minimum elong	-979 Oct 05 j 17:03	3° <del>19</del> '15	15°28'26	opposition	-970 Apr 25 j 17:44	24° <del>59</del> '41	12°56'37
max. Earth dist.	-979 Oct 04 j 21:24	3° <del>17</del> '15	30.57448 AU	min. Earth dist.	-970 Apr 25 j 09:13	25° <del>00</del> '16	29.01979 AU
retrograde	-978 Jan 17 j 07:23	6° <del>00</del> '13		direct	-970 Jul 14 j 15:14	23° <del>03</del> '48	
opposition	-978 Apr 04 j 12:58	4° <del>36</del> '39	16°23'24				
min. Earth dist.	-978 Apr 05 j 07:06	4° <del>35</del> '23	28.65040 AU	conjunction	-970 Oct 28 j 11:19	26° <del>13</del> '43	11°51'50
direct	-978 Jun 23 j 11:00	3° <del>10</del> '36		minimum elong	-970 Oct 28 j 11:43	26° <del>13</del> '45	11°51'50
				max. Earth dist.	-970 Oct 28 j 22:31	26° <del>14</del> '49	31.01950 AU
conjunction	-978 Oct 08 j 12:19	5° <del>55</del> '10	15°10'43	retrograde	-969 Feb 09 j 05:52	28° <del>49</del> '25	
minimum elong	-978 Oct 08 j 12:36	5° <del>55</del> '12	15°10'42	opposition	-969 Apr 28 j 13:08	27° <del>27</del> '15	12°24'22
max. Earth dist.	-978 Oct 07 j 19:35	5° <del>53</del> '28	30.57709 AU	min. Earth dist.	-969 Apr 28 j 01:06	27° <del>28</del> '05	29.11196 AU
retrograde	-977 Jan 20 j 03:42	8° <del>35</del> '54		direct	-969 Jul 17 j 13:16	26° <del>03</del> '41	
opposition	-977 Apr 07 j 11:26	7° <del>12</del> '23	16°03'30				
min. Earth dist.	-977 Apr 08 j 01:40	7° <del>11</del> '23	28.65635 AU	conjunction	-969 Oct 31 j 02:48	28° <del>40</del> '25	11°21'17
direct	-977 Jun 26 j 08:06	5° <del>46</del> '29		minimum elong	-969 Oct 31 j 03:12	28° <del>40</del> '28	11°21'16
				max. Earth dist.	-969 Oct 31 j 16:23	28° <del>41</del> '45	31.12021 AU
conjunction	-977 Oct 11 j 07:46	8° <del>30</del> '33	14°51'12		-969 Dec 05 j 14:48	0° <del>00</del> '00	
minimum elong	-977 Oct 11 j 08:06	8° <del>30</del> '35	14°51'11	retrograde	-968 Feb 11 j 22:21	1° <del>15</del> '09	
max. Earth dist.	-977 Oct 10 j 19:51	8° <del>29</del> '20	30.59242 AU		-968 Apr 26 j 03:20	30° <del>00</del> '00	
retrograde	-976 Jan 22 j 22:18	11° <del>10</del> '56		opposition	-968 Apr 30 j 08:08	29° <del>53</del> '10	11°51'04
opposition	-976 Apr 09 j 09:56	9° <del>47</del> '31	15°41'43	min. Earth dist.	-968 Apr 29 j 17:13	29° <del>54</del> '11	29.21354 AU
min. Earth dist.	-976 Apr 09 j 21:09	9° <del>46</del> '44	28.67457 AU	direct	-968 Jul 19 j 08:41	28° <del>29</del> '55	
direct	-976 Jun 28 j 05:51	8° <del>21</del> '51			-968 Oct 03 j 20:27	0° <del>00</del> '00	
				conjunction	-968 Nov 01 j 17:32	1° <del>05</del> '23	10°49'46
conjunction	-976 Oct 13 j 02:36	11° <del>05</del> '17	14°29'58	minimum elong	-968 Nov 01 j 17:55	1° <del>05</del> '25	10°49'46
minimum elong	-976 Oct 13 j 02:56	11° <del>05</del> '19	14°29'58	max. Earth dist.	-968 Nov 02 j 11:01	1° <del>07</del> '05	31.23036 AU
max. Earth dist.	-976 Oct 12 j 17:23	11° <del>04</del> '21	30.62024 AU	retrograde	-967 Feb 13 j 11:00	3° <del>39</del> '05	
retrograde	-975 Jan 24 j 18:24	13° <del>45</del> '15		min. Earth dist.	-967 May 02 j 08:33	2° <del>18</del> '31	29.32459 AU
opposition	-975 Apr 12 j 08:07	12° <del>21</del> '58	15°18'07	opposition	-967 May 03 j 02:29	2° <del>17</del> '19	11°16'48
min. Earth dist.	-975 Apr 12 j 14:57	12° <del>21</del> '29	28.70499 AU	direct	-967 Jul 22 j 04:58	0° <del>54</del> '23	
direct	-975 Jul 01 j 04:05	10° <del>56</del> '33					
				conjunction	-967 Nov 04 j 07:28	3° <del>28</del> '32	10°17'24
conjunction	-975 Oct 15 j 21:17	13° <del>39</del> '18	14°07'07	minimum elong	-967 Nov 04 j 07:51	3° <del>28</del> '34	10°17'24
minimum elong	-975 Oct 15 j 21:40	13° <del>39</del> '20	14°07'07	max. Earth dist.	-967 Nov 05 j 03:10	3° <del>30</del> '27	31.35012 AU
max. Earth dist.	-975 Oct 15 j 16:41	13° <del>38</del> '50	30.66008 AU	retrograde	-966 Feb 16 j 00:46	6° <del>01</del> '09	
retrograde	-974 Jan 27 j 12:28	16° <del>18</del> '46		opposition	-966 May 05 j 19:58	4° <del>39</del> '36	10°41'39
opposition	-974 Apr 15 j 06:05	14° <del>55</del> '38	14°52'49	min. Earth dist.	-966 May 04 j 22:21	4° <del>41</del> '04	29.44573 AU
min. Earth dist.	-974 Apr 15 j 10:26	14° <del>55</del> '20	28.74700 AU	direct	-966 Jul 24 j 22:20	3° <del>17</del> '01	
direct	-974 Jul 04 j 01:48	13° <del>30</del> '30					
				conjunction	-966 Nov 06 j 20:47	5° <del>49</del> '51	9°44'16
conjunction	-974 Oct 18 j 15:22	16° <del>12</del> '27	13°42'44	minimum elong	-966 Nov 06 j 21:09	5° <del>49</del> '53	9°44'16
minimum elong	-974 Oct 18 j 15:44	16° <del>12</del> '29	13°42'44	max. Earth dist.	-966 Nov 07 j 20:45	5° <del>52</del> '09	31.47993 AU
max. Earth dist.	-974 Oct 18 j 13:25	16° <del>12</del> '15	30.71144 AU	retrograde	-965 Feb 18 j 12:18	8° <del>21</del> '22	
retrograde	-973 Jan 30 j 08:09	18° <del>51</del> '20		opposition	-965 May 08 j 12:50	7° <del>00</del> '04	10°05'45
opposition	-973 Apr 18 j 03:33	17° <del>28</del> '23	14°25'54	min. Earth dist.	-965 May 07 j 12:44	7° <del>01</del> '41	29.57696 AU
min. Earth dist.	-973 Apr 18 j 03:31	17° <del>28</del> '23	28.80003 AU	direct	-965 Jul 27 j 15:57	5° <del>37</del> '50	
direct	-973 Jul 06 j 23:09	16° <del>03</del> '33					
				conjunction	-965 Nov 09 j 09:15	8° <del>09</del> '19	9°10'28
conjunction	-973 Oct 21 j 09:09	18° <del>44</del> '37	13°16'55	minimum elong	-965 Nov 09 j 09:37	8° <del>09</del> '21	9°10'27
minimum elong	-973 Oct 21 j 09:34	18° <del>44</del> '40	13°16'54	max. Earth dist.	-965 Nov 10 j 11:21	8° <del>11</del> '49	31.61980 AU
max. Earth dist.	-973 Oct 21 j 11:02	18° <del>44</del> '49	30.77348 AU	retrograde	-964 Feb 21 j 01:07	10° <del>39</del> '44	
retrograde	-972 Feb 02 j 02:08	21° <del>22</del> '50		min. Earth dist.	-964 May 09 j 00:30	9° <del>20</del> '36	29.71839 AU
opposition	-972 Apr 20 j 00:44	20° <del>00</del> '05	13°57'29	opposition	-964 May 10 j 04:51	9° <del>18</del> '43	9°29'11
min. Earth dist.	-972 Apr 19 j 22:34	20° <del>00</del> '14	28.86345 AU	direct	-964 Jul 29 j 07:56	7° <del>56</del> '53	
direct	-972 Jul 08 j 20:48	18° <del>35</del> '34					
				conjunction	-964 Nov 10 j 21:09	10° <del>27</del> '02	8°36'06
conjunction	-972 Oct 23 j 02:26	21° <del>15</del> '40	12°49'45	minimum elong	-964 Nov 10 j 21:29	10° <del>27</del> '03	8°36'05
minimum elong	-972 Oct 23 j 02:50	21° <del>15</del> '42	12°49'45	max. Earth dist.	-964 Nov 12 j 03:14	10° <del>29</del> '53	31.76954 AU
max. Earth dist.	-972 Oct 23 j 07:12	21° <del>16</del> '08	30.84588 AU	retrograde	-963 Feb 22 j 11:41	12° <del>56</del> '21	
retrograde	-971 Feb 03 j 21:01	23° <del>53</del> '07		opposition	-963 May 12 j 20:22	11° <del>35</del> '37	8°52'04
opposition	-971 Apr 22 j 21:27	22° <del>30</del> '34	13°27'41	min. Earth dist.	-963 May 11 j 13:56	11° <del>37</del> '38	29.86963 AU
min. Earth dist.	-971 Apr 22 j 15:12	22° <del>30</del> '59	28.93682 AU	direct	-963 Jul 31 j 23:16	10° <del>14</del> '13	
direct	-971 Jul 11 j 19:32	21° <del>06</del> '22					
				conjunction	-963 Nov 13 j 08:11	12° <del>43</del> '00	8°01'14
conjunction	-971 Oct 25 j 19:06	23° <del>45</del> '25	12°21'22	minimum elong	-963 Nov 13 j 08:30	12° <del>43</del> '02	8°01'13
minimum elong	-971 Oct 25 j 19:30	23° <del>45</del> '27	12°21'21	max. Earth dist.	-963 Nov 14 j 16:28	12° <del>46</del> '03	31.92870 AU
max. Earth dist.	-971 Oct 26 j 02:59	23° <del>46</del> '12	30.92793 AU		-962 Jan 29 j 21:17	15° <del>00</del> '00	
retrograde	-970 Feb 06 j 13:32	26° <del>22</del> '03					



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 28

Attention, astronomical year style is used: The year -962 in astronomical counting style is the year 963 BCE in historical counting style.

retrograde	-962 Feb 24 j 23:45	15° <del>M</del> 11'12		conjunction	-955 Nov 30 j 00:44	29° <del>M</del> 48'58	3°16'11
	-962 Mar 23 j 18:48	15° <del>R</del> <del>M</del>		minimum elong	-955 Nov 30 j 00:52	29° <del>M</del> 48'59	3°16'09
min. Earth dist.	-962 May 14 j 00:38	13° <del>M</del> 53'04	30.02999 AU	max. Earth dist.	-955 Dec 02 j 03:18	29° <del>M</del> 53'27	33.44643 AU
opposition	-962 May 15 j 10:59	13° <del>M</del> 50'49	8°14'31		-955 Dec 05 j 05:30	0° <del>♂</del>	
direct	-962 Aug 03 j 13:45	12° <del>M</del> 29'51		retrograde	-954 Mar 13 j 14:09	2° <del>♂</del> 07'53	
				min. Earth dist.	-954 May 31 j 02:53	0° <del>♂</del> 53'20	31.55454 AU
conjunction	-962 Nov 15 j 18:40	14° <del>M</del> 57'17	7°26'01	opposition	-954 Jun 02 j 06:00	0° <del>♂</del> 50'07	3°09'44
minimum elong	-962 Nov 15 j 18:58	14° <del>M</del> 57'19	7°26'01		-954 Jul 08 j 08:55	30° <del>R</del> <del>M</del>	
	-962 Nov 16 j 23:43	15° <del>M</del>		direct	-954 Aug 21 j 14:49	29° <del>M</del> 32'31	
max. Earth dist.	-962 Nov 17 j 06:04	15° <del>M</del> 00'36	32.09628 AU		-954 Oct 03 j 02:42	0° <del>♂</del>	
retrograde	-961 Feb 27 j 10:22	17° <del>M</del> 24'22		conjunction	-954 Dec 02 j 05:35	1° <del>♂</del> 49'04	2°40'52
min. Earth dist.	-961 May 16 j 12:49	16° <del>M</del> 06'40	30.19873 AU	minimum elong	-954 Dec 02 j 05:42	1° <del>♂</del> 49'04	2°40'51
opposition	-961 May 18 j 00:52	16° <del>M</del> 04'19	7°36'38	max. Earth dist.	-954 Dec 04 j 09:30	1° <del>♂</del> 53'37	33.66021 AU
	-961 Jul 04 j 11:12	15° <del>R</del> <del>M</del>		retrograde	-953 Mar 15 j 19:10	4° <del>♂</del> 06'48	
direct	-961 Aug 06 j 03:06	14° <del>M</del> 43'48		min. Earth dist.	-953 Jun 02 j 07:34	2° <del>♂</del> 52'43	31.77000 AU
	-961 Sep 07 j 00:26	15° <del>M</del>		opposition	-953 Jun 04 j 13:41	2° <del>♂</del> 49'21	2°32'15
conjunction	-961 Nov 18 j 04:31	17° <del>M</del> 09'54	6°50'31	direct	-953 Aug 23 j 22:03	1° <del>♂</del> 32'07	
minimum elong	-961 Nov 18 j 04:48	17° <del>M</del> 09'55	6°50'29				
max. Earth dist.	-961 Nov 19 j 18:24	17° <del>M</del> 13'24	32.27169 AU	conjunction	-953 Dec 04 j 09:44	3° <del>♂</del> 47'21	2°05'49
retrograde	-960 Feb 29 j 21:15	19° <del>M</del> 35'49		minimum elong	-953 Dec 04 j 09:50	3° <del>♂</del> 47'21	2°05'48
min. Earth dist.	-960 May 17 j 22:55	18° <del>M</del> 18'41	30.37491 AU	max. Earth dist.	-953 Dec 06 j 15:57	3° <del>♂</del> 52'04	33.87947 AU
opposition	-960 May 19 j 14:06	18° <del>M</del> 16'08	6°58'30	retrograde	-952 Mar 16 j 23:44	6° <del>♂</del> 03'57	
direct	-960 Aug 07 j 18:29	16° <del>M</del> 56'04		min. Earth dist.	-952 Jun 03 j 13:24	4° <del>♂</del> 50'14	31.99138 AU
				opposition	-952 Jun 05 j 21:00	4° <del>♂</del> 46'48	1°55'05
conjunction	-960 Nov 19 j 13:30	19° <del>M</del> 20'49	6°14'49	direct	-952 Aug 25 j 04:43	3° <del>♂</del> 29'58	
minimum elong	-960 Nov 19 j 13:45	19° <del>M</del> 20'50	6°14'49				
max. Earth dist.	-960 Nov 21 j 05:29	19° <del>M</del> 24'29	32.45385 AU	conjunction	-952 Dec 05 j 13:12	5° <del>♂</del> 43'54	1°31'05
retrograde	-959 Mar 03 j 08:01	21° <del>M</del> 45'37		minimum elong	-952 Dec 05 j 13:16	5° <del>♂</del> 43'54	1°31'05
min. Earth dist.	-959 May 20 j 09:26	20° <del>M</del> 28'55	30.55790 AU	max. Earth dist.	-952 Dec 07 j 21:40	5° <del>♂</del> 48'46	34.10442 AU
opposition	-959 May 22 j 02:46	20° <del>M</del> 26'16	6°20'15	retrograde	-951 Mar 19 j 03:55	7° <del>♂</del> 59'22	
direct	-959 Aug 10 j 07:01	19° <del>M</del> 06'39		min. Earth dist.	-951 Jun 05 j 17:28	6° <del>♂</del> 46'07	32.21829 AU
				opposition	-951 Jun 08 j 03:26	6° <del>♂</del> 42'33	1°18'19
conjunction	-959 Nov 21 j 22:05	21° <del>M</del> 30'02	5°39'01	direct	-951 Aug 27 j 12:58	5° <del>♂</del> 26'08	
minimum elong	-959 Nov 21 j 22:19	21° <del>M</del> 30'03	5°39'00				
max. Earth dist.	-959 Nov 23 j 16:48	21° <del>M</del> 33'56	32.64220 AU	conjunction	-951 Dec 07 j 16:01	7° <del>♂</del> 38'49	0°56'43
retrograde	-958 Mar 05 j 15:04	23° <del>M</del> 53'40		minimum elong	-951 Dec 07 j 16:03	7° <del>♂</del> 38'49	0°56'42
min. Earth dist.	-958 May 22 j 19:08	22° <del>M</del> 37'27	30.74675 AU	max. Earth dist.	-951 Dec 10 j 01:47	7° <del>♂</del> 43'45	34.33446 AU
opposition	-958 May 24 j 14:27	22° <del>M</del> 34'40	5°41'57	retrograde	-950 Mar 21 j 08:49	9° <del>♂</del> 53'10	
direct	-958 Aug 12 j 20:33	21° <del>M</del> 15'29		min. Earth dist.	-950 Jun 07 j 21:05	8° <del>♂</del> 40'22	32.45048 AU
				opposition	-950 Jun 10 j 09:05	8° <del>♂</del> 36'42	0°41'59
conjunction	-958 Nov 24 j 05:49	23° <del>M</del> 37'31	5°03'11	direct	-950 Aug 29 j 18:13	7° <del>♂</del> 20'41	
minimum elong	-958 Nov 24 j 06:01	23° <del>M</del> 37'32	5°03'11				
max. Earth dist.	-958 Nov 26 j 01:32	23° <del>M</del> 41'28	32.83590 AU	conjunction	-950 Dec 09 j 18:22	9° <del>♂</del> 32'09	0°22'45
retrograde	-957 Mar 07 j 23:04	25° <del>M</del> 59'58		minimum elong	-950 Dec 09 j 18:23	9° <del>♂</del> 32'09	0°22'45
min. Earth dist.	-957 May 25 j 03:38	24° <del>M</del> 44'13	30.94105 AU	max. Earth dist.	-950 Dec 12 j 06:40	9° <del>♂</del> 37'16	34.56918 AU
opposition	-957 May 27 j 01:29	24° <del>M</del> 41'18	5°03'41	retrograde	-949 Mar 23 j 09:20	11° <del>♂</del> 45'25	
direct	-957 Aug 15 j 08:15	23° <del>M</del> 22'32		min. Earth dist.	-949 Jun 10 j 01:06	10° <del>♂</del> 33'01	32.68700 AU
				opposition	-949 Jun 12 j 14:08	10° <del>♂</del> 29'18	0°06'08
conjunction	-957 Nov 26 j 12:56	25° <del>M</del> 43'11	4°27'24	desc. node	-949 Aug 14 j 21:38	9° <del>♂</del> 18'00	
minimum elong	-957 Nov 26 j 13:07	25° <del>M</del> 43'12	4°27'22	direct	-949 Sep 01 j 00:54	9° <del>♂</del> 13'42	
max. Earth dist.	-957 Nov 28 j 11:37	25° <del>M</del> 47'23	33.03453 AU				
retrograde	-956 Mar 09 j 04:21	28° <del>M</del> 04'28		conjunction	-949 Dec 11 j 19:50	11° <del>♂</del> 23'57	0°-10'-50
min. Earth dist.	-956 May 26 j 12:46	26° <del>M</del> 49'06	31.14028 AU	minimum elong	-949 Dec 11 j 19:50	11° <del>♂</del> 23'57	0°10'53
opposition	-956 May 28 j 11:47	26° <del>M</del> 46'06	4°25'30	behind sun begin	-949 Dec 11 j 14:57	11° <del>♂</del> 23'34	
direct	-956 Aug 16 j 20:20	25° <del>M</del> 27'44		behind sun end	-949 Dec 12 j 00:44	11° <del>♂</del> 24'21	
				max. Earth dist.	-949 Dec 14 j 08:41	11° <del>♂</del> 29'05	34.80771 AU
conjunction	-956 Nov 27 j 19:12	27° <del>M</del> 47'01	3°51'42	retrograde	-948 Mar 24 j 10:43	13° <del>♂</del> 36'10	
minimum elong	-956 Nov 27 j 19:21	27° <del>M</del> 47'02	3°51'42	min. Earth dist.	-948 Jun 11 j 03:07	12° <del>♂</del> 24'14	32.92728 AU
max. Earth dist.	-956 Nov 29 j 18:50	27° <del>M</del> 51'16	33.23800 AU	opposition	-948 Jun 13 j 18:33	12° <del>♂</del> 20'23	0°-29'-12
	-955 Feb 18 j 00:37	0° <del>♂</del>		direct	-948 Sep 02 j 06:16	11° <del>♂</del> 05'13	
retrograde	-955 Mar 11 j 10:21	0° <del>♂</del> 07'07					
	-955 Apr 02 j 06:39	30° <del>R</del> <del>M</del>		conjunction	-948 Dec 12 j 21:03	13° <del>♂</del> 14'17	0°-43'-53
min. Earth dist.	-955 May 28 j 19:08	28° <del>M</del> 52'13	31.34473 AU	minimum elong	-948 Dec 12 j 21:01	13° <del>♂</del> 14'17	0°43'54
opposition	-955 May 30 j 21:14	28° <del>M</del> 49'03	3°47'30	max. Earth dist.	-948 Dec 15 j 12:20	13° <del>♂</del> 19'35	35.04933 AU
direct	-955 Aug 19 j 06:02	27° <del>M</del> 31'04		retrograde	-947 Mar 26 j 10:24	15° <del>♂</del> 25'27	
				min. Earth dist.	-947 Jun 13 j 06:45	14° <del>♂</del> 13'52	33.17047 AU



## Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 29

Attention, astronomical year style is used: The year -947 in astronomical counting style is the year 948 BCE in historical counting style.

opposition	-947 Jun 15 j 22:26	14°♂10'01	-1°-4'00	conjunction	-939 Dec 28 j 06:36	28°♂42'03	-5°-16'-44
direct	-947 Sep 04 j 11:10	12°♂55'16		minimum elong	-939 Dec 28 j 06:26	28°♂42'02	5°16'46
				max. Earth dist.	-939 Dec 31 j 06:44	28°♂47'41	37.29209 AU
conjunction	-947 Dec 14 j 21:36	15°♂03'09	-1°-16'-27		-938 Feb 11 j 10:50	0°♂	
minimum elong	-947 Dec 14 j 21:33	15°♂03'09	1°16'29	retrograde	-938 Apr 10 j 19:34	0°♂44'28	
max. Earth dist.	-947 Dec 17 j 13:15	15°♂08'26	35.29332 AU		-938 Jun 11 j 04:56	30°R♂	
retrograde	-946 Mar 28 j 11:01	17°♂13'18		min. Earth dist.	-938 Jun 29 j 03:34	29°♂35'58	35.42973 AU
min. Earth dist.	-946 Jun 15 j 07:41	16°♂02'09	33.41574 AU	opposition	-938 Jul 02 j 04:44	29°♂31'45	-5°-49'-17
opposition	-946 Jun 18 j 01:31	15°♂58'12	-1°-38'-14	direct	-938 Sep 20 j 19:27	28°♂20'09	
direct	-946 Sep 06 j 14:27	14°♂43'50			-938 Dec 20 j 02:44	0°♂	
conjunction	-946 Dec 16 j 21:41	16°♂50'35	-1°-48'-30	conjunction	-938 Dec 30 j 02:30	0°♂18'31	-5°-44'-1
minimum elong	-946 Dec 16 j 21:38	16°♂50'34	1°48'32	minimum elong	-938 Dec 30 j 02:20	0°♂18'30	5°44'03
max. Earth dist.	-946 Dec 19 j 14:42	16°♂55'56	35.53873 AU	max. Earth dist.	-937 Jan 02 j 03:39	0°♂24'11	37.54948 AU
retrograde	-945 Mar 30 j 11:20	18°♂59'42		retrograde	-937 Apr 12 j 15:54	2°♂20'05	
min. Earth dist.	-945 Jun 17 j 10:07	17°♂48'51	33.66246 AU	min. Earth dist.	-937 Jul 01 j 00:12	1°♂11'56	35.68927 AU
opposition	-945 Jun 20 j 04:05	17°♂44'55	-2°-11'-52	opposition	-937 Jul 04 j 02:26	1°♂07'41	-6°-17'-37
direct	-945 Sep 08 j 16:15	16°♂30'55			-937 Sep 06 j 15:06	30°R♂	
				direct	-937 Sep 22 j 16:27	29°♂56'26	
conjunction	-945 Dec 18 j 21:20	18°♂36'32	-2°-20'-1		-937 Oct 08 j 14:56	0°♂	
minimum elong	-945 Dec 18 j 21:15	18°♂36'32	2°20'02				
max. Earth dist.	-945 Dec 21 j 15:13	18°♂41'55	35.78532 AU	conjunction	-937 Dec 31 j 21:50	1°♂53'54	-6°-10'-40
retrograde	-944 Mar 31 j 11:35	20°♂44'38		minimum elong	-937 Dec 31 j 21:39	1°♂53'54	6°10'41
min. Earth dist.	-944 Jun 18 j 10:43	19°♂34'09	33.91017 AU	max. Earth dist.	-936 Jan 03 j 23:10	1°♂59'33	37.80785 AU
opposition	-944 Jun 21 j 06:01	19°♂30'10	-2°-44'-54	retrograde	-936 Apr 13 j 13:18	3°♂54'39	
direct	-944 Sep 09 j 18:13	18°♂16'31		min. Earth dist.	-936 Jul 01 j 20:46	2°♂46'51	35.94980 AU
				opposition	-936 Jul 04 j 23:54	2°♂42'35	-6°-45'-15
conjunction	-944 Dec 19 j 20:08	20°♂21'01	-2°-50'-58	direct	-936 Sep 23 j 12:51	1°♂31'42	
minimum elong	-944 Dec 19 j 20:03	20°♂21'00	2°50'59				
max. Earth dist.	-944 Dec 22 j 14:32	20°♂26'23	36.03267 AU	conjunction	-935 Jan 01 j 16:53	3°♂28'17	-6°-36'-40
retrograde	-943 Apr 02 j 11:31	22°♂28'07		minimum elong	-935 Jan 01 j 16:42	3°♂28'16	6°36'42
min. Earth dist.	-943 Jun 20 j 11:07	21°♂17'57	34.15904 AU	max. Earth dist.	-935 Jan 04 j 19:54	3°♂34'00	38.06669 AU
opposition	-943 Jun 23 j 07:26	21°♂13'55	-3°-17'-17	retrograde	-935 Apr 15 j 07:38	5°♂28'12	
direct	-943 Sep 11 j 18:46	20°♂00'36		min. Earth dist.	-935 Jul 03 j 17:55	4°♂20'42	36.21032 AU
				opposition	-935 Jul 06 j 20:51	4°♂16'27	-7°-12'-11
conjunction	-943 Dec 21 j 18:39	22°♂04'00	-3°-21'-20	direct	-935 Sep 25 j 11:30	3°♂05'56	
minimum elong	-943 Dec 21 j 18:32	22°♂03'59	3°21'22				
max. Earth dist.	-943 Dec 24 j 14:52	22°♂09'29	36.28110 AU	conjunction	-934 Jan 03 j 11:34	5°♂01'39	-7°-2'-2
retrograde	-942 Apr 04 j 08:19	24°♂10'06		minimum elong	-934 Jan 03 j 11:23	5°♂01'38	7°02'03
min. Earth dist.	-942 Jun 22 j 11:12	23°♂00'13	34.40915 AU	max. Earth dist.	-934 Jan 06 j 13:54	5°♂07'17	38.32512 AU
opposition	-942 Jun 25 j 07:56	22°♂56'11	-3°-49'-2	retrograde	-934 Apr 17 j 03:22	7°♂00'46	
direct	-942 Sep 13 j 22:00	21°♂43'11		min. Earth dist.	-934 Jul 05 j 12:57	5°♂53'38	36.47024 AU
				opposition	-934 Jul 08 j 17:06	5°♂49'20	-7°-38'-27
conjunction	-942 Dec 23 j 16:23	23°♂45'31	-3°-51'-7	direct	-934 Sep 27 j 07:45	4°♂39'08	
minimum elong	-942 Dec 23 j 16:16	23°♂45'31	3°51'08				
max. Earth dist.	-942 Dec 26 j 12:34	23°♂50'58	36.53091 AU	conjunction	-933 Jan 05 j 05:57	6°♂34'01	-7°-26'-46
retrograde	-941 Apr 06 j 06:10	25°♂50'38		minimum elong	-933 Jan 05 j 05:46	6°♂34'00	7°26'49
min. Earth dist.	-941 Jun 24 j 09:17	24°♂41'09	34.66114 AU	max. Earth dist.	-933 Jan 08 j 09:22	6°♂39'42	38.58240 AU
opposition	-941 Jun 27 j 07:57	24°♂37'01	-4°-20'-8	retrograde	-933 Apr 18 j 19:06	8°♂32'21	
direct	-941 Sep 15 j 22:54	23°♂24'21		min. Earth dist.	-933 Jul 07 j 10:01	7°♂25'26	36.72877 AU
				opposition	-933 Jul 10 j 13:10	7°♂21'12	-8°-4'-2
conjunction	-941 Dec 25 j 13:35	25°♂25'39	-4°-20'-17	direct	-933 Sep 29 j 05:34	6°♂11'20	
minimum elong	-941 Dec 25 j 13:27	25°♂25'38	4°20'19				
max. Earth dist.	-941 Dec 28 j 11:56	25°♂31'13	36.78255 AU	conjunction	-932 Jan 06 j 23:52	8°♂05'20	-7°-50'-54
retrograde	-940 Apr 07 j 01:36	27°♂29'50		minimum elong	-932 Jan 06 j 23:40	8°♂05'20	7°50'55
min. Earth dist.	-940 Jun 25 j 08:45	26°♂20'37	34.91521 AU	max. Earth dist.	-932 Jan 10 j 02:52	8°♂10'58	38.83809 AU
opposition	-940 Jun 28 j 07:30	26°♂16'30	-4°-50'-32	retrograde	-932 Apr 19 j 12:13	10°♂02'54	
direct	-940 Sep 16 j 23:47	25°♂04'11		min. Earth dist.	-932 Jul 08 j 04:34	8°♂56'17	36.98544 AU
				opposition	-932 Jul 11 j 08:42	8°♂52'01	-8°-28'-57
conjunction	-940 Dec 26 j 10:22	27°♂04'27	-4°-48'-50	direct	-932 Sep 30 j 02:02	7°♂42'26	
minimum elong	-940 Dec 26 j 10:13	27°♂04'26	4°48'51				
max. Earth dist.	-940 Dec 29 j 09:07	27°♂10'01	37.03637 AU	conjunction	-931 Jan 07 j 17:25	9°♂35'36	-8°-14'-24
retrograde	-939 Apr 08 j 21:51	29°♂07'44		minimum elong	-931 Jan 07 j 17:13	9°♂35'35	8°14'26
min. Earth dist.	-939 Jun 27 j 05:25	27°♂58'56	35.17150 AU	max. Earth dist.	-931 Jan 10 j 20:34	9°♂41'12	39.09172 AU
opposition	-939 Jun 30 j 06:18	27°♂54'42	-5°-20'-15	retrograde	-931 Apr 21 j 07:24	11°♂32'23	
direct	-939 Sep 18 j 22:49	26°♂42'44		min. Earth dist.	-931 Jul 10 j 00:09	10°♂25'58	37.24030 AU
				opposition	-931 Jul 13 j 03:50	10°♂21'45	-8°-53'-12



## Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 30

Attention, astronomical year style is used: The year -931 in astronomical counting style is the year 932 BCE in historical counting style.

direct	-931 Oct 01 j 19:20	9° $\overline{3}$ 12'26		minimum elong	-922 Jan 20 j 14:18	22° $\overline{3}$ 22'25	11°18'14
				max. Earth dist.	-922 Jan 23 j 19:08	22° $\overline{3}$ 27'50	41.32629 AU
conjunction	-930 Jan 09 j 10:39	11° $\overline{3}$ 04'46	-8°-37'-17	retrograde	-922 May 04 j 05:17	24° $\overline{3}$ 12'59	
minimum elong	-930 Jan 09 j 10:26	11° $\overline{3}$ 04'45	8°37'19	min. Earth dist.	-922 Jul 23 j 07:09	23° $\overline{3}$ 08'45	39.48890 AU
max. Earth dist.	-930 Jan 12 j 14:24	11° $\overline{3}$ 10'21	39.34362 AU	opposition	-922 Jul 26 j 12:25	23° $\overline{3}$ 04'36	-12°-1'-44
retrograde	-930 Apr 22 j 23:52	13° $\overline{3}$ 00'45		direct	-922 Oct 15 j 04:45	21° $\overline{3}$ 57'43	
min. Earth dist.	-930 Jul 11 j 18:36	11° $\overline{3}$ 54'33	37.49339 AU				
opposition	-930 Jul 14 j 22:23	11° $\overline{3}$ 50'21	-9°-16'-47	conjunction	-921 Jan 22 j 04:42	23° $\overline{3}$ 43'39	-11°-35'-39
direct	-930 Oct 03 j 14:59	10° $\overline{3}$ 41'16		minimum elong	-921 Jan 22 j 04:29	23° $\overline{3}$ 43'38	11°35'41
				max. Earth dist.	-921 Jan 25 j 09:57	23° $\overline{3}$ 49'04	41.56722 AU
conjunction	-929 Jan 11 j 03:14	12° $\overline{3}$ 32'47	-8°-59'-34	retrograde	-921 May 05 j 18:09	25° $\overline{3}$ 33'37	
minimum elong	-929 Jan 11 j 03:02	12° $\overline{3}$ 32'46	8°59'36	min. Earth dist.	-921 Jul 24 j 23:55	24° $\overline{3}$ 29'32	39.73039 AU
max. Earth dist.	-929 Jan 14 j 06:21	12° $\overline{3}$ 38'18	39.59397 AU	opposition	-921 Jul 28 j 03:39	24° $\overline{3}$ 25'29	-12°-19'-32
retrograde	-929 Apr 24 j 18:11	14° $\overline{3}$ 28'00		direct	-921 Oct 16 j 21:12	23° $\overline{3}$ 18'52	
min. Earth dist.	-929 Jul 13 j 12:02	13° $\overline{3}$ 22'03	37.74545 AU				
opposition	-929 Jul 16 j 16:30	13° $\overline{3}$ 17'49	-9°-39'-42	conjunction	-920 Jan 23 j 18:44	25° $\overline{3}$ 04'11	-11°-52'-33
direct	-929 Oct 05 j 07:59	12° $\overline{3}$ 09'00		minimum elong	-920 Jan 23 j 18:33	25° $\overline{3}$ 04'10	11°52'35
				max. Earth dist.	-920 Jan 26 j 23:03	25° $\overline{3}$ 09'30	41.80491 AU
conjunction	-928 Jan 12 j 19:37	13° $\overline{3}$ 59'44	-9°-21'-13	retrograde	-920 May 06 j 06:52	26° $\overline{3}$ 53'33	
minimum elong	-928 Jan 12 j 19:25	13° $\overline{3}$ 59'43	9°21'14	min. Earth dist.	-920 Jul 25 j 14:18	25° $\overline{3}$ 49'44	39.96833 AU
max. Earth dist.	-928 Jan 16 j 00:13	14° $\overline{3}$ 05'19	39.84350 AU	opposition	-920 Jul 28 j 18:31	25° $\overline{3}$ 45'40	-12°-36'-47
retrograde	-928 Apr 25 j 09:16	15° $\overline{3}$ 54'11		direct	-920 Oct 17 j 13:28	24° $\overline{3}$ 39'16	
min. Earth dist.	-928 Jul 14 j 06:20	14° $\overline{3}$ 48'25	37.99686 AU				
opposition	-928 Jul 17 j 10:17	14° $\overline{3}$ 44'14	-10°-1'-57	conjunction	-919 Jan 24 j 08:22	26° $\overline{3}$ 23'59	-12°-8'-56
direct	-928 Oct 06 j 03:19	13° $\overline{3}$ 35'41		minimum elong	-919 Jan 24 j 08:09	26° $\overline{3}$ 23'58	12°08'57
				max. Earth dist.	-919 Jan 27 j 12:04	26° $\overline{3}$ 29'13	42.03884 AU
conjunction	-927 Jan 13 j 11:30	15° $\overline{3}$ 25'38	-9°-42'-14	retrograde	-919 May 07 j 21:50	28° $\overline{3}$ 12'46	
minimum elong	-927 Jan 13 j 11:17	15° $\overline{3}$ 25'37	9°42'16	min. Earth dist.	-919 Jul 27 j 06:05	27° $\overline{3}$ 09'05	40.20260 AU
max. Earth dist.	-927 Jan 16 j 15:35	15° $\overline{3}$ 31'09	40.09261 AU	opposition	-919 Jul 30 j 09:10	27° $\overline{3}$ 05'05	-12°-53'-27
retrograde	-927 Apr 27 j 00:28	17° $\overline{3}$ 19'22		direct	-919 Oct 19 j 03:31	25° $\overline{3}$ 58'55	
min. Earth dist.	-927 Jul 15 j 22:13	16° $\overline{3}$ 13'55	38.24791 AU				
opposition	-927 Jul 19 j 03:34	16° $\overline{3}$ 09'40	-10°-23'-32	conjunction	-918 Jan 25 j 21:54	27° $\overline{3}$ 43'01	-12°-24'-46
direct	-927 Oct 07 j 21:01	15° $\overline{3}$ 01'22		minimum elong	-918 Jan 25 j 21:43	27° $\overline{3}$ 43'00	12°24'48
				max. Earth dist.	-918 Jan 29 j 01:43	27° $\overline{3}$ 48'14	42.26926 AU
conjunction	-926 Jan 15 j 03:09	16° $\overline{3}$ 50'35	-10°-2'-38	retrograde	-918 May 09 j 11:57	29° $\overline{3}$ 31'12	
minimum elong	-926 Jan 15 j 02:56	16° $\overline{3}$ 50'34	10°02'39	min. Earth dist.	-918 Jul 28 j 20:38	28° $\overline{3}$ 27'40	40.43332 AU
max. Earth dist.	-926 Jan 18 j 08:05	16° $\overline{3}$ 56'08	40.34124 AU	opposition	-918 Jul 31 j 23:08	28° $\overline{3}$ 23'43	-13°-9'-35
retrograde	-926 Apr 28 j 14:44	18° $\overline{3}$ 43'39		direct	-918 Oct 20 j 16:42	27° $\overline{3}$ 17'45	
min. Earth dist.	-926 Jul 17 j 15:46	17° $\overline{3}$ 38'23	38.49854 AU				
opposition	-926 Jul 20 j 20:24	17° $\overline{3}$ 34'11	-10°-44'-27	conjunction	-917 Jan 27 j 10:53	29° $\overline{3}$ 01'14	-12°-40'-5
direct	-926 Oct 09 j 15:10	16° $\overline{3}$ 26'10		minimum elong	-917 Jan 27 j 10:41	29° $\overline{3}$ 01'13	12°40'07
				max. Earth dist.	-917 Jan 30 j 13:28	29° $\overline{3}$ 06'20	42.49648 AU
conjunction	-925 Jan 16 j 18:30	18° $\overline{3}$ 14'40	-10°-22'-25		-917 Mar 06 j 07:23	0° $\approx$	
minimum elong	-925 Jan 16 j 18:17	18° $\overline{3}$ 14'39	10°22'27	retrograde	-917 May 11 j 02:31	0° $\approx$ 48'50	
max. Earth dist.	-925 Jan 19 j 23:40	18° $\overline{3}$ 20'12	40.58944 AU		-917 Jul 18 j 18:37	30° $\overline{R}$ $\overline{3}$	
retrograde	-925 Apr 30 j 06:20	20° $\overline{3}$ 07'04		min. Earth dist.	-917 Jul 30 j 10:15	29° $\overline{3}$ 45'28	40.66133 AU
min. Earth dist.	-925 Jul 19 j 07:32	19° $\overline{3}$ 02'06	38.74840 AU	opposition	-917 Aug 02 j 12:59	29° $\overline{3}$ 41'32	-13°-25'-8
opposition	-925 Jul 22 j 12:53	18° $\overline{3}$ 57'53	-11°-4'-43	direct	-917 Oct 22 j 05:05	28° $\overline{3}$ 35'46	
direct	-925 Oct 11 j 07:29	17° $\overline{3}$ 50'09			-916 Jan 17 j 12:20	0° $\approx$	
conjunction	-924 Jan 18 j 09:15	19° $\overline{3}$ 37'58	-10°-41'-36	conjunction	-916 Jan 28 j 23:32	0° $\approx$ 18'39	-12°-54'-52
minimum elong	-924 Jan 18 j 09:03	19° $\overline{3}$ 37'58	10°41'37	minimum elong	-916 Jan 28 j 23:21	0° $\approx$ 18'39	12°54'54
max. Earth dist.	-924 Jan 21 j 14:13	19° $\overline{3}$ 43'27	40.83665 AU	max. Earth dist.	-916 Feb 01 j 03:04	0° $\approx$ 23'48	42.72122 AU
retrograde	-924 Apr 30 j 23:38	21° $\overline{3}$ 29'45		retrograde	-916 May 11 j 13:02	2° $\approx$ 05'40	
min. Earth dist.	-924 Jul 19 j 23:45	20° $\overline{3}$ 25'01	38.99724 AU	min. Earth dist.	-916 Jul 31 j 00:54	1° $\approx$ 02'26	40.88702 AU
opposition	-924 Jul 23 j 05:11	20° $\overline{3}$ 20'49	-11°-24'-20	opposition	-916 Aug 03 j 02:31	0° $\approx$ 58'33	-13°-40'-8
direct	-924 Oct 11 j 21:13	19° $\overline{3}$ 13'22			-916 Sep 29 j 02:08	30° $\overline{R}$ $\overline{3}$	
				direct	-916 Oct 22 j 20:23	29° $\overline{3}$ 52'59	
conjunction	-923 Jan 19 j 00:04	21° $\overline{3}$ 00'33	-11°00'-11		-916 Nov 15 j 08:02	0° $\approx$	
minimum elong	-923 Jan 18 j 23:51	21° $\overline{3}$ 00'32	11°00'13				
max. Earth dist.	-923 Jan 22 j 05:58	21° $\overline{3}$ 06'04	41.08252 AU	conjunction	-915 Jan 29 j 12:03	1° $\approx$ 35'18	-13°-9'-7
retrograde	-923 May 02 j 14:10	22° $\overline{3}$ 51'42		minimum elong	-915 Jan 29 j 11:51	1° $\approx$ 35'17	13°09'08
min. Earth dist.	-923 Jul 21 j 16:11	21° $\overline{3}$ 47'11	39.24425 AU	max. Earth dist.	-915 Feb 01 j 14:35	1° $\approx$ 40'21	42.94407 AU
opposition	-923 Jul 24 j 20:56	21° $\overline{3}$ 43'03	-11°-43'-20	retrograde	-915 May 12 j 23:50	3° $\approx$ 21'45	
direct	-923 Oct 13 j 13:37	20° $\overline{3}$ 35'53		min. Earth dist.	-915 Aug 01 j 13:06	2° $\approx$ 18'44	41.11095 AU
				opposition	-915 Aug 04 j 15:31	2° $\approx$ 14'50	-13°-54'-34
conjunction	-922 Jan 20 j 14:29	22° $\overline{3}$ 22'26	-11°-18'-12	direct	-915 Oct 24 j 10:41	1° $\approx$ 09'27	



# Planetary Phenomena of Pluto from -1400 through -900 (UT), Astrodienst AG 7-Dez-2017 14:45, page 31

Attention, astronomical year style is used: The year -914 in astronomical counting style is the year 915 BCE in historical counting style.

conjunction	-914 Jan 31 j 00:15	2°51'13	-13°-22'-50	retrograde	-906 May 24 j 06:40	14°19'38	
minimum elong	-914 Jan 31 j 00:05	2°51'13	13°22'52	min. Earth dist.	-906 Aug 13 j 05:51	13°17'57	43.01227 AU
max. Earth dist.	-914 Feb 03 j 03:03	2°56'16	43.16515 AU	opposition	-906 Aug 16 j 02:10	13°14'28	-15°-41'00
retrograde	-914 May 14 j 11:09	4°37'09		direct	-906 Nov 04 j 22:19	12°10'51	
min. Earth dist.	-914 Aug 03 j 03:07	3°34'15	41.33321 AU				
opposition	-914 Aug 06 j 04:27	3°30'25	-14°-8'-26	conjunction	-905 Feb 11 j 04:52	13°48'17	-15°-4'-13
direct	-914 Oct 26 j 00:41	2°25'15		minimum elong	-905 Feb 11 j 04:46	13°48'16	15°04'15
				max. Earth dist.	-905 Feb 14 j 02:17	13°52'46	45.03670 AU
conjunction	-913 Feb 01 j 12:12	4°06'28	-13°-36'-1		-905 Apr 03 j 14:33	15°	
minimum elong	-913 Feb 01 j 12:02	4°06'28	13°36'02	retrograde	-905 May 25 j 18:20	15°29'55	
max. Earth dist.	-913 Feb 04 j 15:09	4°11'30	43.38470 AU		-905 Jul 18 j 03:37	15°	
retrograde	-913 May 15 j 22:29	5°51'53		min. Earth dist.	-905 Aug 14 j 16:19	14°28'23	43.20493 AU
min. Earth dist.	-913 Aug 04 j 15:19	4°49'12	41.55364 AU	opposition	-905 Aug 17 j 12:47	14°24'54	-15°-50'-28
opposition	-913 Aug 07 j 16:58	4°45'22	-14°-21'-45	direct	-905 Nov 06 j 07:16	13°21'26	
direct	-913 Oct 27 j 14:13	3°40'24					
conjunction	-912 Feb 02 j 23:51	5°21'07	-13°-48'-41	conjunction	-904 Feb 12 j 15:02	14°58'25	-15°-13'-16
minimum elong	-912 Feb 02 j 23:42	5°21'06	13°48'44	minimum elong	-904 Feb 12 j 14:54	14°58'25	15°13'17
max. Earth dist.	-912 Feb 06 j 01:51	5°26'03	43.60239 AU		-904 Feb 13 j 15:31	15°	
retrograde	-912 May 16 j 13:38	7°06'02		max. Earth dist.	-904 Feb 15 j 12:44	15°02'54	45.22627 AU
min. Earth dist.	-912 Aug 05 j 03:55	6°03'32	41.77223 AU	retrograde	-904 May 26 j 02:49	16°39'37	
opposition	-912 Aug 08 j 05:22	5°59'43	-14°-34'-33	min. Earth dist.	-904 Aug 15 j 04:22	15°38'09	43.39455 AU
direct	-912 Oct 27 j 23:33	4°54'58		opposition	-904 Aug 17 j 23:10	15°34'45	-15°-59'-29
					-904 Sep 17 j 01:32	15°	
conjunction	-911 Feb 03 j 11:26	6°35'11	-14°00'-52	direct	-904 Nov 06 j 18:30	14°31'27	
minimum elong	-911 Feb 03 j 11:17	6°35'11	14°00'53		-904 Dec 26 j 02:33	15°	
max. Earth dist.	-911 Feb 06 j 14:11	6°40'09	43.81799 AU	conjunction	-903 Feb 13 j 01:00	16°08'00	-15°-21'-51
retrograde	-911 May 18 j 01:45	8°19'37		minimum elong	-903 Feb 13 j 00:55	16°08'00	15°21'53
min. Earth dist.	-911 Aug 06 j 17:11	7°17'15	41.98823 AU	max. Earth dist.	-903 Feb 15 j 22:01	16°12'26	45.41322 AU
opposition	-911 Aug 09 j 17:28	7°13'31	-14°-46'-49	retrograde	-903 May 27 j 10:05	17°48'47	
direct	-911 Oct 29 j 11:13	6°08'59		min. Earth dist.	-903 Aug 16 j 13:58	16°47'29	43.58154 AU
				opposition	-903 Aug 19 j 09:13	16°44'05	-16°-8'-3
conjunction	-910 Feb 04 j 22:50	7°48'44	-14°-12'-33	direct	-903 Nov 08 j 07:08	15°40'56	
minimum elong	-910 Feb 04 j 22:40	7°48'43	14°12'35				
max. Earth dist.	-910 Feb 08 j 00:08	7°53'34	44.03083 AU	conjunction	-902 Feb 14 j 10:42	17°17'05	-15°-30'00
retrograde	-910 May 19 j 12:46	9°32'40		minimum elong	-902 Feb 14 j 10:36	17°17'05	15°30'01
min. Earth dist.	-910 Aug 08 j 04:35	8°30'32	42.20120 AU	max. Earth dist.	-902 Feb 17 j 06:53	17°21'26	45.59764 AU
opposition	-910 Aug 11 j 05:07	8°26'47	-14°-58'-35	retrograde	-902 May 28 j 20:46	18°57'28	
direct	-910 Oct 30 j 22:38	7°22'28		min. Earth dist.	-902 Aug 18 j 00:48	17°56'17	43.76623 AU
				opposition	-902 Aug 20 j 19:03	17°52'55	-16°-16'-9
conjunction	-909 Feb 06 j 10:02	9°01'45	-14°-23'-46	direct	-902 Nov 09 j 17:03	16°49'57	
minimum elong	-909 Feb 06 j 09:54	9°01'44	14°23'47				
max. Earth dist.	-909 Feb 09 j 11:18	9°06'34	44.24024 AU	conjunction	-901 Feb 15 j 20:19	18°25'43	-15°-37'-43
retrograde	-909 May 20 j 21:55	10°45'14		minimum elong	-901 Feb 15 j 20:15	18°25'43	15°37'45
min. Earth dist.	-909 Aug 09 j 18:00	9°43'11	42.41045 AU	max. Earth dist.	-901 Feb 18 j 16:55	18°30'05	45.77993 AU
opposition	-909 Aug 12 j 16:50	9°39'32	-15°-9'-52	retrograde	-901 May 30 j 06:50	20°05'43	
direct	-909 Nov 01 j 12:19	8°35'26		min. Earth dist.	-901 Aug 19 j 10:59	19°04'40	43.94852 AU
				opposition	-901 Aug 22 j 04:42	19°01'21	-16°-23'-48
conjunction	-908 Feb 07 j 21:03	10°14'14	-14°-34'-31	direct	-901 Nov 11 j 02:12	17°58'34	
minimum elong	-908 Feb 07 j 20:54	10°14'14	14°34'33				
max. Earth dist.	-908 Feb 10 j 21:28	10°18'59	44.44581 AU	conjunction	-900 Feb 17 j 05:33	19°33'57	-15°-45'-1
retrograde	-908 May 21 j 07:34	11°57'16		minimum elong	-900 Feb 17 j 05:28	19°33'57	15°45'01
min. Earth dist.	-908 Aug 10 j 05:33	10°55'24	42.61541 AU	max. Earth dist.	-900 Feb 20 j 00:41	19°38'12	45.95988 AU
opposition	-908 Aug 13 j 04:12	10°51'46	-15°-20'-41	retrograde	-900 May 30 j 18:34	21°13'35	
direct	-908 Nov 02 j 01:17	9°47'50		min. Earth dist.	-900 Aug 19 j 20:31	20°12'42	44.12839 AU
				opposition	-900 Aug 22 j 14:15	20°09'24	-16°-31'-1
conjunction	-907 Feb 08 j 07:54	11°26'10	-14°-44'-51	direct	-900 Nov 11 j 09:15	19°06'48	
minimum elong	-907 Feb 08 j 07:47	11°26'10	14°44'52				
max. Earth dist.	-907 Feb 11 j 06:56	11°30'49	44.64694 AU				
retrograde	-907 May 22 j 19:50	13°08'45					
min. Earth dist.	-907 Aug 11 j 17:52	12°06'58	42.81601 AU				
opposition	-907 Aug 14 j 15:20	12°03'25	-15°-31'-4				
direct	-907 Nov 03 j 11:30	10°59'39					
conjunction	-906 Feb 09 j 18:39	12°37'32	-14°-54'-45				
minimum elong	-906 Feb 09 j 18:31	12°37'31	14°54'47				
max. Earth dist.	-906 Feb 12 j 17:47	12°42'09	44.84380 AU				



# Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 1

Attention, astronomical year style is used: The year -900 in astronomical counting style is the year 901 BCE in historical counting style.

conjunction	-900 Feb 17 j 05:33	19°33'57	-15°-45'-1	minimum elong	-892 Feb 26 j 04:16	28°26'57	16°29'37
minimum elong	-900 Feb 17 j 05:28	19°33'57	15°45'01	max. Earth dist.	-892 Feb 28 j 16:19	28°30'39	47.26305 AU
max. Earth dist.	-900 Feb 20 j 00:41	19°38'12	45.95988 AU		-892 May 21 j 01:59	0°	
retrograde	-900 May 30 j 18:34	21°13'35		retrograde	-892 Jun 08 j 12:27	0°03'45	
min. Earth dist.	-900 Aug 19 j 20:31	20°12'42	44.12839 AU		-892 Jun 27 j 03:15	30°	
opposition	-900 Aug 22 j 14:15	20°09'24	-16°-31'-1	min. Earth dist.	-892 Aug 29 j 03:02	29°03'34	45.42218 AU
direct	-900 Nov 11 j 09:15	19°06'48		opposition	-892 Aug 31 j 12:00	29°00'45	-17°-14'-44
				direct	-892 Nov 20 j 10:37	27°59'15	
conjunction	-899 Feb 17 j 14:52	20°41'51	-15°-51'-53				
minimum elong	-899 Feb 17 j 14:48	20°41'50	15°51'55	conjunction	-891 Feb 26 j 12:33	29°31'36	-16°-33'-35
max. Earth dist.	-899 Feb 20 j 10:24	20°46'06	46.13715 AU	minimum elong	-891 Feb 26 j 12:31	29°31'36	16°33'36
retrograde	-899 Jun 01 j 02:43	22°21'06		max. Earth dist.	-891 Mar 01 j 00:21	29°35'16	47.40694 AU
min. Earth dist.	-899 Aug 21 j 07:27	21°20'20	44.30526 AU		-891 Mar 18 j 03:00	0°	
opposition	-899 Aug 23 j 23:29	21°17'07	-16°-37'-48	retrograde	-891 Jun 09 j 18:49	1°08'03	
direct	-899 Nov 12 j 18:52	20°14'42		min. Earth dist.	-891 Aug 30 j 11:09	0°07'57	45.56508 AU
				opposition	-891 Sep 01 j 19:42	0°05'10	-17°-18'-33
conjunction	-898 Feb 19 j 00:05	21°49'25	-15°-58'-21		-891 Sep 06 j 04:29	30°	
minimum elong	-898 Feb 19 j 00:01	21°49'24	15°58'22	direct	-891 Nov 21 j 20:33	29°03'46	
max. Earth dist.	-898 Feb 21 j 18:16	21°53'34	46.31134 AU		-890 Feb 02 j 19:12	0°	
retrograde	-898 Jun 02 j 10:11	23°28'19					
min. Earth dist.	-898 Aug 22 j 16:26	22°27'44	44.47861 AU	conjunction	-890 Feb 27 j 20:30	0°35'47	-16°-37'-12
opposition	-898 Aug 25 j 08:34	22°24'31	-16°-44'-11	minimum elong	-890 Feb 27 j 20:30	0°35'47	16°37'13
direct	-898 Nov 14 j 04:41	21°22'16		max. Earth dist.	-890 Mar 02 j 06:40	0°39'20	47.54773 AU
				retrograde	-890 Jun 11 j 04:36	2°11'55	
conjunction	-897 Feb 20 j 08:59	22°56'39	-16°-4'-27	min. Earth dist.	-890 Aug 31 j 19:31	1°11'54	45.70514 AU
minimum elong	-897 Feb 20 j 08:55	22°56'39	16°04'29	opposition	-890 Sep 03 j 03:29	1°09'09	-17°-22'00
max. Earth dist.	-897 Feb 23 j 02:14	23°00'45	46.48157 AU	direct	-890 Nov 23 j 02:53	0°07'52	
retrograde	-897 Jun 03 j 18:45	24°35'14					
min. Earth dist.	-897 Aug 24 j 03:23	23°34'43	44.64781 AU	conjunction	-889 Mar 01 j 04:16	1°39'35	-16°-40'-27
opposition	-897 Aug 26 j 17:40	23°31'37	-16°-50'-10	minimum elong	-889 Mar 01 j 04:15	1°39'35	16°40'28
direct	-897 Nov 15 j 15:00	22°29'32		max. Earth dist.	-889 Mar 03 j 14:48	1°43'09	47.68573 AU
				retrograde	-889 Jun 12 j 12:53	3°15'24	
conjunction	-896 Feb 21 j 18:04	24°03'34	-16°-10'-10	min. Earth dist.	-889 Sep 02 j 04:26	2°15'27	45.84226 AU
minimum elong	-896 Feb 21 j 18:01	24°03'34	16°10'11	opposition	-889 Sep 04 j 11:08	2°12'46	-17°-25'-4
max. Earth dist.	-896 Feb 24 j 10:56	24°07'37	46.64749 AU	direct	-889 Nov 24 j 09:47	1°11'36	
retrograde	-896 Jun 04 j 03:14	25°41'49					
min. Earth dist.	-896 Aug 24 j 13:00	24°41'24	44.81217 AU	conjunction	-888 Mar 01 j 12:00	2°43'03	-16°-43'-21
opposition	-896 Aug 27 j 02:27	24°38'21	-16°-55'-48	minimum elong	-888 Mar 01 j 12:01	2°43'04	16°43'23
direct	-896 Nov 16 j 01:12	23°36'25		max. Earth dist.	-888 Mar 03 j 21:05	2°46'31	47.82105 AU
				retrograde	-888 Jun 12 j 21:05	4°18'35	
conjunction	-895 Feb 22 j 02:53	25°10'07	-16°-15'-33	min. Earth dist.	-888 Sep 02 j 11:37	3°18'46	45.97657 AU
minimum elong	-895 Feb 22 j 02:50	25°10'06	16°15'35	opposition	-888 Sep 04 j 18:30	3°16'05	-17°-27'-47
max. Earth dist.	-895 Feb 24 j 17:29	25°14'00	46.80845 AU	direct	-888 Nov 24 j 15:52	2°15'03	
retrograde	-895 Jun 05 j 15:29	26°47'59					
min. Earth dist.	-895 Aug 25 j 22:35	25°47'41	44.97155 AU	conjunction	-887 Mar 02 j 19:37	3°46'15	-16°-45'-54
opposition	-895 Aug 28 j 11:11	25°44'40	-17°-1'-4	minimum elong	-887 Mar 02 j 19:37	3°46'15	16°45'56
direct	-895 Nov 17 j 06:53	24°42'52		max. Earth dist.	-887 Mar 05 j 04:05	3°49'40	47.95330 AU
				retrograde	-887 Jun 14 j 03:21	5°21'31	
conjunction	-894 Feb 23 j 11:39	26°16'13	-16°-20'-35	min. Earth dist.	-887 Sep 03 j 20:54	4°21'45	46.10763 AU
minimum elong	-894 Feb 23 j 11:38	26°16'13	16°20'36	opposition	-887 Sep 06 j 01:54	4°19'10	-17°-30'-8
max. Earth dist.	-894 Feb 26 j 02:05	26°20'05	46.96439 AU	direct	-887 Nov 26 j 00:12	3°18'16	
retrograde	-894 Jun 07 j 00:22	27°53'44					
min. Earth dist.	-894 Aug 27 j 08:58	26°53'26	45.12590 AU	conjunction	-886 Mar 04 j 03:14	4°49'13	-16°-48'-7
opposition	-894 Aug 29 j 19:35	26°50'32	-17°-5'-59	minimum elong	-886 Mar 04 j 03:16	4°49'13	16°48'09
direct	-894 Nov 18 j 15:05	25°48'50		max. Earth dist.	-886 Mar 06 j 11:17	4°52'36	48.08219 AU
				retrograde	-886 Jun 15 j 08:45	6°24'14	
conjunction	-893 Feb 24 j 20:08	27°21'50	-16°-25'-16	min. Earth dist.	-886 Sep 05 j 04:21	5°24'36	46.23485 AU
minimum elong	-893 Feb 24 j 20:05	27°21'50	16°25'18	opposition	-886 Sep 07 j 08:55	5°22'02	-17°-32'-9
max. Earth dist.	-893 Feb 27 j 08:57	27°25'36	47.11578 AU	direct	-886 Nov 27 j 09:43	4°21'16	
retrograde	-893 Jun 08 j 06:30	28°58'59					
min. Earth dist.	-893 Aug 28 j 17:10	27°58'47	45.27592 AU	conjunction	-885 Mar 05 j 10:40	5°52'00	-16°-50'-1
opposition	-893 Aug 31 j 03:49	27°55'54	-17°-10'-33	minimum elong	-885 Mar 05 j 10:41	5°52'00	16°50'02
direct	-893 Nov 20 j 00:19	26°54'17		max. Earth dist.	-885 Mar 07 j 16:37	5°55'15	48.20701 AU
				retrograde	-885 Jun 16 j 18:56	7°26'46	
conjunction	-892 Feb 26 j 04:17	28°26'57	-16°-29'-36	min. Earth dist.	-885 Sep 06 j 12:40	6°27'13	46.35783 AU



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 2

Attention, astronomical year style is used: The year -885 in astronomical counting style is the year 886 BCE in historical counting style.

opposition	-885 Sep 08 j 16:01	6° <del>✕</del> 24'43	-17°-33'-51	conjunction	-876 Mar 14 j 01:28	15° <del>✕</del> 04'48	-16°-53'-48
direct	-885 Nov 28 j 15:00	5° <del>✕</del> 24'05		minimum elong	-876 Mar 14 j 01:32	15° <del>✕</del> 04'49	16°53'49
				max. Earth dist.	-876 Mar 15 j 22:47	15° <del>✕</del> 07'28	49.12807 AU
conjunction	-884 Mar 05 j 18:06	6° <del>✕</del> 54'35	-16°-51'-37	retrograde	-876 Jun 25 j 04:00	16° <del>✕</del> 37'22	
minimum elong	-884 Mar 05 j 18:08	6° <del>✕</del> 54'35	16°51'38	min. Earth dist.	-876 Sep 15 j 07:24	15° <del>✕</del> 38'12	47.26148 AU
max. Earth dist.	-884 Mar 07 j 23:55	6° <del>✕</del> 57'49	48.32724 AU	opposition	-876 Sep 17 j 01:38	15° <del>✕</del> 36'10	-17°-35'-32
retrograde	-884 Jun 17 j 03:27	8° <del>✕</del> 29'07		direct	-876 Dec 07 j 03:41	14° <del>✕</del> 36'17	
min. Earth dist.	-884 Sep 06 j 21:33	7° <del>✕</del> 29'36	46.47573 AU				
opposition	-884 Sep 08 j 23:01	7° <del>✕</del> 27'12	-17°-35'-14	conjunction	-875 Mar 15 j 07:55	16° <del>✕</del> 04'50	-16°-52'-42
direct	-884 Nov 28 j 21:14	6° <del>✕</del> 26'41		minimum elong	-875 Mar 15 j 08:00	16° <del>✕</del> 04'50	16°52'43
				max. Earth dist.	-875 Mar 17 j 03:28	16° <del>✕</del> 07'23	49.21349 AU
conjunction	-883 Mar 07 j 01:33	7° <del>✕</del> 56'57	-16°-52'-55	retrograde	-875 Jun 26 j 10:33	17° <del>✕</del> 37'12	
minimum elong	-883 Mar 07 j 01:36	7° <del>✕</del> 56'58	16°52'55	min. Earth dist.	-875 Sep 16 j 14:29	16° <del>✕</del> 38'05	47.34516 AU
max. Earth dist.	-883 Mar 09 j 05:10	8° <del>✕</del> 00'03	48.44236 AU	opposition	-875 Sep 18 j 07:24	16° <del>✕</del> 36'07	-17°-34'-9
retrograde	-883 Jun 18 j 10:52	9° <del>✕</del> 31'13		direct	-875 Dec 08 j 10:19	15° <del>✕</del> 36'19	
min. Earth dist.	-883 Sep 08 j 04:40	8° <del>✕</del> 31'48	46.58841 AU				
opposition	-883 Sep 10 j 05:43	8° <del>✕</del> 29'25	-17°-36'-21	conjunction	-874 Mar 16 j 14:25	17° <del>✕</del> 04'42	-16°-51'-19
direct	-883 Nov 30 j 02:49	7° <del>✕</del> 29'00		minimum elong	-874 Mar 16 j 14:30	17° <del>✕</del> 04'42	16°51'19
				max. Earth dist.	-874 Mar 18 j 10:04	17° <del>✕</del> 07'15	49.29568 AU
conjunction	-882 Mar 08 j 08:50	8° <del>✕</del> 59'03	-16°-53'-56	retrograde	-874 Jun 27 j 17:34	18° <del>✕</del> 36'53	
minimum elong	-882 Mar 08 j 08:52	8° <del>✕</del> 59'03	16°53'58	min. Earth dist.	-874 Sep 17 j 21:35	17° <del>✕</del> 37'48	47.42517 AU
max. Earth dist.	-882 Mar 10 j 11:18	9° <del>✕</del> 02'04	48.55217 AU	opposition	-874 Sep 19 j 13:09	17° <del>✕</del> 35'54	-17°-32'-29
retrograde	-882 Jun 19 j 15:34	10° <del>✕</del> 33'03		direct	-874 Dec 09 j 16:10	16° <del>✕</del> 36'13	
min. Earth dist.	-882 Sep 09 j 13:41	9° <del>✕</del> 33'37	46.69589 AU				
opposition	-882 Sep 11 j 12:30	9° <del>✕</del> 31'20	-17°-37'-9	conjunction	-873 Mar 17 j 20:38	18° <del>✕</del> 04'26	-16°-49'-38
direct	-882 Dec 01 j 11:34	8° <del>✕</del> 31'01		minimum elong	-873 Mar 17 j 20:44	18° <del>✕</del> 04'26	16°49'40
				max. Earth dist.	-873 Mar 19 j 14:22	18° <del>✕</del> 06'52	49.37407 AU
conjunction	-881 Mar 09 j 15:52	10° <del>✕</del> 00'49	-16°-54'-41	retrograde	-873 Jun 29 j 02:01	19° <del>✕</del> 36'26	
minimum elong	-881 Mar 09 j 15:55	10° <del>✕</del> 00'49	16°54'41	min. Earth dist.	-873 Sep 19 j 03:44	18° <del>✕</del> 37'26	47.50108 AU
max. Earth dist.	-881 Mar 11 j 17:34	10° <del>✕</del> 03'47	48.65719 AU	opposition	-873 Sep 20 j 18:52	18° <del>✕</del> 35'34	-17°-30'-32
retrograde	-881 Jun 20 j 19:32	11° <del>✕</del> 34'33		direct	-873 Dec 10 j 19:31	17° <del>✕</del> 35'57	
min. Earth dist.	-881 Sep 10 j 20:33	10° <del>✕</del> 35'11	46.79867 AU				
opposition	-881 Sep 12 j 19:00	10° <del>✕</del> 32'56	-17°-37'-40	conjunction	-872 Mar 18 j 03:04	19° <del>✕</del> 04'02	-16°-47'-42
direct	-881 Dec 02 j 21:03	9° <del>✕</del> 32'40		minimum elong	-872 Mar 18 j 03:10	19° <del>✕</del> 04'02	16°47'42
				max. Earth dist.	-872 Mar 19 j 19:45	19° <del>✕</del> 06'24	49.44787 AU
conjunction	-880 Mar 09 j 22:46	11° <del>✕</del> 02'14	-16°-55'-7	retrograde	-872 Jun 29 j 07:39	20° <del>✕</del> 35'51	
minimum elong	-880 Mar 09 j 22:48	11° <del>✕</del> 02'15	16°55'09	min. Earth dist.	-872 Sep 19 j 11:41	19° <del>✕</del> 36'50	47.57209 AU
max. Earth dist.	-880 Mar 11 j 22:35	11° <del>✕</del> 05'05	48.75785 AU	opposition	-872 Sep 21 j 00:30	19° <del>✕</del> 35'04	-17°-28'-19
retrograde	-880 Jun 21 j 03:23	12° <del>✕</del> 35'44		direct	-872 Dec 11 j 01:15	18° <del>✕</del> 35'32	
min. Earth dist.	-880 Sep 11 j 04:15	11° <del>✕</del> 36'22	46.89757 AU				
opposition	-880 Sep 13 j 01:23	11° <del>✕</del> 34'11	-17°-37'-53	conjunction	-871 Mar 19 j 09:34	20° <del>✕</del> 03'28	-16°-45'-30
direct	-880 Dec 03 j 03:19	10° <del>✕</del> 34'00		minimum elong	-871 Mar 19 j 09:40	20° <del>✕</del> 03'28	16°45'32
				max. Earth dist.	-871 Mar 21 j 01:03	20° <del>✕</del> 05'45	49.51671 AU
conjunction	-879 Mar 11 j 05:43	12° <del>✕</del> 03'20	-16°-55'-15	retrograde	-871 Jun 30 j 11:07	21° <del>✕</del> 35'06	
minimum elong	-879 Mar 11 j 05:47	12° <del>✕</del> 03'20	16°55'16	min. Earth dist.	-871 Sep 20 j 17:48	20° <del>✕</del> 36'08	47.63776 AU
max. Earth dist.	-879 Mar 13 j 05:39	12° <del>✕</del> 06'10	48.85487 AU	opposition	-871 Sep 22 j 06:01	20° <del>✕</del> 34'24	-17°-25'-51
retrograde	-879 Jun 22 j 10:56	13° <del>✕</del> 36'34		direct	-871 Dec 12 j 08:49	19° <del>✕</del> 34'55	
min. Earth dist.	-879 Sep 12 j 11:41	12° <del>✕</del> 37'14	46.99288 AU				
opposition	-879 Sep 14 j 07:38	12° <del>✕</del> 35'06	-17°-37'-47	conjunction	-870 Mar 20 j 15:45	21° <del>✕</del> 02'41	-16°-43'-4
direct	-879 Dec 04 j 09:30	11° <del>✕</del> 34'59		minimum elong	-870 Mar 20 j 15:52	21° <del>✕</del> 02'42	16°43'04
				max. Earth dist.	-870 Mar 22 j 04:58	21° <del>✕</del> 04'51	49.58014 AU
conjunction	-878 Mar 12 j 12:23	13° <del>✕</del> 04'06	-16°-55'-5	retrograde	-870 Jul 01 j 17:11	22° <del>✕</del> 34'09	
minimum elong	-878 Mar 12 j 12:26	13° <del>✕</del> 04'06	16°55'06	min. Earth dist.	-870 Sep 22 j 01:02	21° <del>✕</del> 35'09	47.69823 AU
max. Earth dist.	-878 Mar 14 j 10:33	13° <del>✕</del> 06'49	48.94872 AU	opposition	-870 Sep 23 j 11:30	21° <del>✕</del> 33'31	-17°-23'-8
retrograde	-878 Jun 23 j 19:44	14° <del>✕</del> 37'05		direct	-870 Dec 13 j 15:00	20° <del>✕</del> 34'04	
min. Earth dist.	-878 Sep 13 j 17:42	13° <del>✕</del> 37'50	47.08523 AU				
opposition	-878 Sep 15 j 13:38	13° <del>✕</del> 35'43	-17°-37'-21	conjunction	-869 Mar 21 j 22:00	22° <del>✕</del> 01'41	-16°-40'-23
direct	-878 Dec 05 j 12:43	12° <del>✕</del> 35'39		minimum elong	-869 Mar 21 j 22:07	22° <del>✕</del> 01'41	16°40'25
				max. Earth dist.	-869 Mar 23 j 10:53	22° <del>✕</del> 03'49	49.63860 AU
conjunction	-877 Mar 13 j 18:58	14° <del>✕</del> 04'35	-16°-54'-36	retrograde	-869 Jul 02 j 22:36	23° <del>✕</del> 32'58	
minimum elong	-877 Mar 13 j 19:03	14° <del>✕</del> 04'35	16°54'37	min. Earth dist.	-869 Sep 23 j 07:42	22° <del>✕</del> 33'58	47.75380 AU
max. Earth dist.	-877 Mar 15 j 16:46	14° <del>✕</del> 07'16	49.03969 AU	opposition	-869 Sep 24 j 16:48	22° <del>✕</del> 32'23	-17°-20'-9
retrograde	-877 Jun 25 j 01:27	15° <del>✕</del> 37'20		direct	-869 Dec 14 j 21:40	21° <del>✕</del> 32'59	
min. Earth dist.	-877 Sep 15 j 01:34	14° <del>✕</del> 38'05	47.17478 AU				
opposition	-877 Sep 16 j 19:45	14° <del>✕</del> 36'03	-17°-36'-36	conjunction	-868 Mar 22 j 04:01	23° <del>✕</del> 00'27	-16°-37'-27
direct	-877 Dec 06 j 18:21	13° <del>✕</del> 36'05		minimum elong	-868 Mar 22 j 04:09	23° <del>✕</del> 00'27	16°37'27
				max. Earth dist.	-868 Mar 23 j 14:49	23° <del>✕</del> 02'27	49.69261 AU



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 3

Attention, astronomical year style is used: The year -868 in astronomical counting style is the year 869 BCE in historical counting style.

retrograde	-868 Jul 03 j 06:51	24° $\text{H}$ 31'32		minimum elong	-860 Mar 30 j 02:54	0° $\text{Y}$ 45'34	16°04'17
opposition	-868 Sep 24 j 22:01	23° $\text{H}$ 31'01	-17°-16'-55	max. Earth dist.	-860 Mar 31 j 04:47	0° $\text{Y}$ 47'03	50.00140 AU
min. Earth dist.	-868 Sep 23 j 13:22	23° $\text{H}$ 32'34	47.80521 AU	retrograde	-860 Jul 11 j 00:52	2° $\text{Y}$ 15'43	
direct	-868 Dec 15 j 00:25	22° $\text{H}$ 31'39		opposition	-860 Oct 02 j 13:32	1° $\text{Y}$ 15'46	-16°-41'-3
				min. Earth dist.	-860 Oct 01 j 14:06	1° $\text{Y}$ 16'53	48.09358 AU
conjunction	-867 Mar 23 j 10:05	23° $\text{H}$ 58'59	-16°-34'-14	direct	-860 Dec 22 j 18:41	0° $\text{Y}$ 16'51	
minimum elong	-867 Mar 23 j 10:11	23° $\text{H}$ 58'59	16°34'15				
max. Earth dist.	-867 Mar 24 j 20:12	24° $\text{H}$ 00'57	49.74256 AU	conjunction	-859 Mar 31 j 08:46	1° $\text{Y}$ 43'31	-15°-58'-59
retrograde	-867 Jul 04 j 12:59	25° $\text{H}$ 29'54		minimum elong	-859 Mar 31 j 08:55	1° $\text{Y}$ 43'32	15°58'58
min. Earth dist.	-867 Sep 24 j 20:31	24° $\text{H}$ 30'53	47.85284 AU	max. Earth dist.	-859 Apr 01 j 10:09	1° $\text{Y}$ 44'58	50.02191 AU
opposition	-867 Sep 26 j 03:06	24° $\text{H}$ 29'26	-17°-13'-24	retrograde	-859 Jul 12 j 05:01	3° $\text{Y}$ 13'35	
direct	-867 Dec 16 j 04:35	23° $\text{H}$ 30'06		opposition	-859 Oct 03 j 18:13	2° $\text{Y}$ 13'41	-16°-35'-26
				min. Earth dist.	-859 Oct 02 j 20:10	2° $\text{Y}$ 14'44	48.11035 AU
conjunction	-866 Mar 24 j 16:05	24° $\text{H}$ 57'18	-16°-30'-46	direct	-859 Dec 24 j 01:38	1° $\text{Y}$ 14'48	
minimum elong	-866 Mar 24 j 16:13	24° $\text{H}$ 57'19	16°30'47				
max. Earth dist.	-866 Mar 26 j 01:28	24° $\text{H}$ 59'14	49.78919 AU	conjunction	-858 Apr 01 j 14:33	2° $\text{Y}$ 41'24	-15°-53'-28
retrograde	-866 Jul 05 j 15:23	26° $\text{H}$ 28'05		minimum elong	-858 Apr 01 j 14:42	2° $\text{Y}$ 41'24	15°53'29
min. Earth dist.	-866 Sep 26 j 01:26	25° $\text{H}$ 29'08	47.89722 AU	max. Earth dist.	-858 Apr 02 j 13:25	2° $\text{Y}$ 42'42	50.03694 AU
opposition	-866 Sep 27 j 08:06	25° $\text{H}$ 27'40	-17°-9'-36	retrograde	-858 Jul 13 j 13:27	4° $\text{Y}$ 11'21	
direct	-866 Dec 17 j 12:13	24° $\text{H}$ 28'23		opposition	-858 Oct 04 j 22:58	3° $\text{Y}$ 11'29	-16°-29'-35
				min. Earth dist.	-858 Oct 04 j 01:52	3° $\text{Y}$ 12'29	48.12173 AU
conjunction	-865 Mar 25 j 21:43	25° $\text{H}$ 55'29	-16°-27'-1	direct	-858 Dec 25 j 04:07	2° $\text{Y}$ 12'36	
minimum elong	-865 Mar 25 j 21:50	25° $\text{H}$ 55'29	16°27'02				
max. Earth dist.	-865 Mar 27 j 05:21	25° $\text{H}$ 57'18	49.83269 AU	conjunction	-857 Apr 02 j 20:09	3° $\text{Y}$ 39'07	-15°-47'-45
retrograde	-865 Jul 06 j 20:14	27° $\text{H}$ 26'07		minimum elong	-857 Apr 02 j 20:20	3° $\text{Y}$ 39'08	15°47'45
min. Earth dist.	-865 Sep 27 j 07:55	26° $\text{H}$ 27'10	47.93866 AU	max. Earth dist.	-857 Apr 03 j 18:02	3° $\text{Y}$ 40'22	50.04658 AU
opposition	-865 Sep 28 j 13:14	26° $\text{H}$ 25'47	-17°-5'-32	retrograde	-857 Jul 14 j 20:56	5° $\text{Y}$ 08'58	
direct	-865 Dec 18 j 18:47	25° $\text{H}$ 26'33		min. Earth dist.	-857 Oct 05 j 08:52	4° $\text{Y}$ 10'00	48.12790 AU
				opposition	-857 Oct 06 j 03:45	4° $\text{Y}$ 09'07	-16°-23'-31
conjunction	-864 Mar 26 j 03:39	26° $\text{H}$ 53'33	-16°-23'00	direct	-857 Dec 26 j 06:59	3° $\text{Y}$ 10'13	
minimum elong	-864 Mar 26 j 03:48	26° $\text{H}$ 53'33	16°23'01				
max. Earth dist.	-864 Mar 27 j 11:30	26° $\text{H}$ 55'23	49.87333 AU	conjunction	-856 Apr 03 j 01:55	4° $\text{Y}$ 36'40	-15°-41'-48
retrograde	-864 Jul 07 j 02:16	28° $\text{H}$ 24'05		minimum elong	-856 Apr 03 j 02:04	4° $\text{Y}$ 36'40	15°41'49
opposition	-864 Sep 28 j 18:06	27° $\text{H}$ 23'49	-17°-1'-10	max. Earth dist.	-856 Apr 03 j 22:38	4° $\text{Y}$ 37'50	50.05148 AU
min. Earth dist.	-864 Sep 27 j 13:48	27° $\text{H}$ 25'10	47.97704 AU	retrograde	-856 Jul 14 j 23:49	6° $\text{Y}$ 06'23	
direct	-864 Dec 19 j 00:14	26° $\text{H}$ 24'39		opposition	-856 Oct 06 j 08:11	5° $\text{Y}$ 06'32	-16°-17'-11
				min. Earth dist.	-856 Oct 05 j 13:36	5° $\text{Y}$ 07'25	48.12952 AU
conjunction	-863 Mar 27 j 09:27	27° $\text{H}$ 51'34	-16°-18'-42	direct	-856 Dec 26 j 13:01	4° $\text{Y}$ 07'37	
minimum elong	-863 Mar 27 j 09:34	27° $\text{H}$ 51'34	16°18'43				
max. Earth dist.	-863 Mar 28 j 15:21	27° $\text{H}$ 53'17	49.91101 AU	conjunction	-855 Apr 04 j 07:31	5° $\text{Y}$ 34'00	-15°-35'-36
retrograde	-863 Jul 08 j 10:47	29° $\text{H}$ 21'59		minimum elong	-855 Apr 04 j 07:42	5° $\text{Y}$ 34'01	15°35'37
opposition	-863 Sep 29 j 23:00	28° $\text{H}$ 21'49	-16°-56'-31	max. Earth dist.	-855 Apr 05 j 02:12	5° $\text{Y}$ 35'04	50.05204 AU
min. Earth dist.	-863 Sep 28 j 19:03	28° $\text{H}$ 23'08	48.01233 AU	retrograde	-855 Jul 16 j 02:50	7° $\text{Y}$ 03'37	
direct	-863 Dec 20 j 02:25	27° $\text{H}$ 22'43		opposition	-855 Oct 07 j 12:47	6° $\text{Y}$ 03'47	-16°-10'-37
				min. Earth dist.	-855 Oct 06 j 19:56	6° $\text{Y}$ 04'34	48.12719 AU
conjunction	-862 Mar 28 j 15:10	28° $\text{H}$ 49'34	-16°-14'-8	direct	-855 Dec 27 j 19:53	5° $\text{Y}$ 04'51	
minimum elong	-862 Mar 28 j 15:20	28° $\text{H}$ 49'34	16°14'10				
max. Earth dist.	-862 Mar 29 j 20:24	28° $\text{H}$ 51'14	49.94522 AU	conjunction	-854 Apr 05 j 13:05	6° $\text{Y}$ 31'10	-15°-29'-10
	-862 May 26 j 07:57	0° $\text{Y}$		minimum elong	-854 Apr 05 j 13:14	6° $\text{Y}$ 31'10	15°29'10
retrograde	-862 Jul 09 j 16:22	0° $\text{Y}$ 19'53		max. Earth dist.	-854 Apr 06 j 07:46	6° $\text{Y}$ 32'14	50.04889 AU
	-862 Aug 23 j 08:27	30° $\text{R}$ $\text{H}$		retrograde	-854 Jul 17 j 06:09	8° $\text{Y}$ 00'42	
min. Earth dist.	-862 Sep 30 j 02:00	29° $\text{H}$ 21'01	48.04388 AU	opposition	-854 Oct 08 j 17:13	7° $\text{Y}$ 00'51	-16°-3'-48
opposition	-862 Oct 01 j 03:54	29° $\text{H}$ 19'48	-16°-51'-37	min. Earth dist.	-854 Oct 08 j 01:17	7° $\text{Y}$ 01'37	48.12126 AU
direct	-862 Dec 21 j 06:31	28° $\text{H}$ 20'46		direct	-854 Dec 29 j 02:59	6° $\text{Y}$ 01'55	
conjunction	-861 Mar 29 j 21:01	29° $\text{H}$ 47'34	-16°-9'-19	conjunction	-853 Apr 06 j 18:32	7° $\text{Y}$ 28'11	-15°-22'-28
minimum elong	-861 Mar 29 j 21:09	29° $\text{H}$ 47'34	16°09'20	minimum elong	-853 Apr 06 j 18:43	7° $\text{Y}$ 28'12	15°22'29
max. Earth dist.	-861 Mar 31 j 01:16	29° $\text{H}$ 49'11	49.97566 AU	max. Earth dist.	-853 Apr 07 j 11:18	7° $\text{Y}$ 29'08	50.04257 AU
	-861 Apr 07 j 22:55	0° $\text{Y}$		retrograde	-853 Jul 18 j 13:29	8° $\text{Y}$ 57'39	
retrograde	-861 Jul 10 j 19:44	1° $\text{Y}$ 17'48		opposition	-853 Oct 09 j 21:37	7° $\text{Y}$ 57'49	-15°-56'-42
min. Earth dist.	-861 Oct 01 j 07:08	0° $\text{Y}$ 19'00	48.07121 AU	min. Earth dist.	-853 Oct 09 j 06:02	7° $\text{Y}$ 58'34	48.11237 AU
opposition	-861 Oct 02 j 08:38	0° $\text{Y}$ 17'47	-16°-46'-27	direct	-853 Dec 30 j 05:42	6° $\text{Y}$ 58'53	
	-861 Oct 18 j 05:50	30° $\text{R}$ $\text{H}$					
direct	-861 Dec 22 j 12:38	29° $\text{H}$ 18'49		conjunction	-852 Apr 07 j 00:02	8° $\text{Y}$ 25'07	-15°-15'-31
	-860 Feb 24 j 04:50	0° $\text{Y}$		minimum elong	-852 Apr 07 j 00:12	8° $\text{Y}$ 25'07	15°15'31
				max. Earth dist.	-852 Apr 07 j 16:09	8° $\text{Y}$ 26'02	50.03322 AU
conjunction	-860 Mar 30 j 02:45	0° $\text{Y}$ 45'34	-16°-4'-15	retrograde	-852 Jul 18 j 19:27	9° $\text{Y}$ 54'31	



# Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 4

Attention, astronomical year style is used: The year -852 in astronomical counting style is the year 853 BCE in historical counting style.

opposition	-852 Oct 10 j 02:07	8°V54'43	-15°-49'-21	conjunction	-843 Apr 16 j 02:38	16°V58'54	-14°-2'-10
min. Earth dist.	-852 Oct 09 j 12:21	8°V55'22	48.10041 AU	minimum elong	-843 Apr 16 j 02:49	16°V58'54	14°02'11
direct	-852 Dec 30 j 09:13	7°V55'47		max. Earth dist.	-843 Apr 16 j 06:04	16°V59'05	49.76947 AU
				retrograde	-843 Jul 27 j 17:10	18°V28'11	
conjunction	-851 Apr 08 j 05:39	9°V22'00	-15°-8'-18	opposition	-843 Oct 18 j 17:24	17°V28'32	-14°-32'-11
minimum elong	-851 Apr 08 j 05:50	9°V22'01	15°08'19	min. Earth dist.	-843 Oct 18 j 14:11	17°V28'41	47.80545 AU
max. Earth dist.	-851 Apr 08 j 21:02	9°V22'53	50.02099 AU	direct	-842 Jan 08 j 04:20	16°V29'31	
retrograde	-851 Jul 19 j 23:34	10°V51'21					
opposition	-851 Oct 11 j 06:21	9°V51'36	-15°-41'-43	conjunction	-842 Apr 17 j 08:15	17°V56'00	-13°-52'-53
min. Earth dist.	-851 Oct 10 j 16:41	9°V52'15	48.08536 AU	minimum elong	-842 Apr 17 j 08:28	17°V56'00	13°52'53
direct	-851 Dec 31 j 14:04	8°V52'41		max. Earth dist.	-842 Apr 17 j 11:01	17°V56'09	49.71783 AU
				retrograde	-842 Jul 28 j 23:38	19°V25'17	
conjunction	-850 Apr 09 j 11:06	10°V18'55	-15°00'-50	opposition	-842 Oct 19 j 21:48	18°V25'37	-14°-22'-25
minimum elong	-850 Apr 09 j 11:16	10°V18'56	15°00'51	min. Earth dist.	-842 Oct 19 j 20:21	18°V25'41	47.75085 AU
max. Earth dist.	-850 Apr 10 j 00:32	10°V19'41	50.00548 AU	direct	-841 Jan 09 j 07:21	17°V26'33	
retrograde	-850 Jul 21 j 04:13	11°V48'15					
opposition	-850 Oct 12 j 10:50	10°V48'32	-15°-33'-51	conjunction	-841 Apr 18 j 13:45	18°V53'05	-13°-43'-20
min. Earth dist.	-850 Oct 11 j 22:54	10°V49'06	48.06695 AU	minimum elong	-841 Apr 18 j 13:56	18°V53'05	13°43'20
direct	-849 Jan 01 j 19:15	9°V49'39		max. Earth dist.	-841 Apr 18 j 15:48	18°V53'12	49.66319 AU
				retrograde	-841 Jul 30 j 04:34	20°V22'23	
conjunction	-849 Apr 10 j 16:37	11°V15'54	-14°-53'-7	opposition	-841 Oct 21 j 02:07	19°V22'41	-14°-12'-24
minimum elong	-849 Apr 10 j 16:49	11°V15'55	14°53'09	min. Earth dist.	-841 Oct 21 j 00:38	19°V22'45	47.69331 AU
max. Earth dist.	-849 Apr 11 j 05:54	11°V16'40	49.98633 AU	direct	-840 Jan 10 j 11:45	18°V23'35	
retrograde	-849 Jul 22 j 07:57	12°V45'15					
opposition	-849 Oct 13 j 15:14	11°V45'34	-15°-25'-43	conjunction	-840 Apr 18 j 19:20	19°V50'11	-13°-33'-32
min. Earth dist.	-849 Oct 13 j 04:24	11°V46'05	48.04439 AU	minimum elong	-840 Apr 18 j 19:33	19°V50'12	13°33'33
direct	-848 Jan 03 j 01:38	10°V46'42		max. Earth dist.	-840 Apr 18 j 19:31	19°V50'12	49.60561 AU
				retrograde	-840 Jul 30 j 08:40	21°V19'31	
conjunction	-848 Apr 10 j 22:16	12°V12'59	-14°-45'-11	opposition	-840 Oct 21 j 06:27	20°V19'48	-14°-2'-6
minimum elong	-848 Apr 10 j 22:27	12°V13'00	14°45'11	min. Earth dist.	-840 Oct 21 j 06:38	20°V19'48	47.63299 AU
max. Earth dist.	-848 Apr 11 j 09:12	12°V13'37	49.96280 AU	direct	-839 Jan 10 j 17:01	19°V20'40	
retrograde	-848 Jul 22 j 15:53	13°V42'19					
opposition	-848 Oct 13 j 19:33	12°V42'42	-15°-17'-22	conjunction	-839 Apr 20 j 01:08	20°V47'21	-13°-23'-29
min. Earth dist.	-848 Oct 13 j 09:46	12°V43'09	48.01719 AU	minimum elong	-839 Apr 20 j 01:20	20°V47'22	13°23'29
direct	-847 Jan 03 j 04:06	11°V43'49		max. Earth dist.	-839 Apr 20 j 01:18	20°V47'22	49.54529 AU
				retrograde	-839 Jul 31 j 11:32	22°V16'44	
conjunction	-847 Apr 12 j 04:04	13°V10'10	-14°-37'-1	opposition	-839 Oct 22 j 10:51	21°V17'01	-13°-51'-33
minimum elong	-847 Apr 12 j 04:15	13°V10'10	14°37'02	min. Earth dist.	-839 Oct 22 j 11:41	21°V16'58	47.56971 AU
max. Earth dist.	-847 Apr 12 j 13:46	13°V10'42	49.93417 AU	direct	-838 Jan 12 j 00:01	20°V17'51	
retrograde	-847 Jul 23 j 23:35	14°V39'29					
opposition	-847 Oct 15 j 00:05	13°V39'53	-15°-8'-47	conjunction	-838 Apr 21 j 06:39	21°V44'37	-13°-13'-10
min. Earth dist.	-847 Oct 14 j 16:38	13°V40'14	47.98465 AU	minimum elong	-838 Apr 21 j 06:52	21°V44'38	13°13'12
direct	-846 Jan 04 j 06:35	12°V41'00		max. Earth dist.	-838 Apr 21 j 04:56	21°V44'31	49.48200 AU
				retrograde	-838 Aug 01 j 18:04	23°V14'04	
conjunction	-846 Apr 13 j 09:42	14°V07'22	-14°-28'-39	opposition	-838 Oct 23 j 15:14	22°V14'21	-13°-40'-45
minimum elong	-846 Apr 13 j 09:54	14°V07'23	14°28'39	min. Earth dist.	-838 Oct 23 j 16:51	22°V14'17	47.50331 AU
max. Earth dist.	-846 Apr 13 j 18:01	14°V07'51	49.90031 AU	direct	-837 Jan 13 j 03:53	21°V15'10	
retrograde	-846 Jul 25 j 04:02	15°V36'41					
opposition	-846 Oct 16 j 04:27	14°V37'05	-14°-59'-59	conjunction	-837 Apr 22 j 12:28	22°V42'02	-13°-2'-37
min. Earth dist.	-846 Oct 15 j 21:21	14°V37'25	47.94678 AU	minimum elong	-837 Apr 22 j 12:40	22°V42'03	13°02'38
direct	-845 Jan 05 j 11:08	13°V38'11		max. Earth dist.	-837 Apr 22 j 09:52	22°V41'54	49.41517 AU
				retrograde	-837 Aug 03 j 01:55	24°V11'34	
conjunction	-845 Apr 14 j 15:18	15°V04'35	-14°-20'-3	opposition	-837 Oct 24 j 19:42	23°V11'51	-13°-29'-41
minimum elong	-845 Apr 14 j 15:29	15°V04'35	14°20'04	min. Earth dist.	-837 Oct 24 j 23:20	23°V11'40	47.43303 AU
max. Earth dist.	-845 Apr 14 j 21:18	15°V04'55	49.86122 AU	direct	-836 Jan 14 j 06:27	22°V12'38	
retrograde	-845 Jul 26 j 07:13	16°V33'53					
opposition	-845 Oct 17 j 08:52	15°V34'16	-14°-50'-57	conjunction	-836 Apr 22 j 18:27	23°V39'38	-12°-51'-50
min. Earth dist.	-845 Oct 17 j 03:54	15°V34'30	47.90400 AU	minimum elong	-836 Apr 22 j 18:39	23°V39'38	12°51'51
direct	-844 Jan 06 j 17:49	14°V35'20		max. Earth dist.	-836 Apr 22 j 14:36	23°V39'24	49.34426 AU
				retrograde	-836 Aug 03 j 08:57	25°V09'13	
conjunction	-844 Apr 14 j 21:02	16°V01'45	-14°-11'-14	opposition	-836 Oct 25 j 00:08	24°V09'29	-13°-18'-23
minimum elong	-844 Apr 14 j 21:15	16°V01'46	14°11'14	min. Earth dist.	-836 Oct 25 j 04:13	24°V09'18	47.35819 AU
max. Earth dist.	-844 Apr 15 j 02:44	16°V02'05	49.81744 AU	direct	-835 Jan 14 j 09:24	23°V10'13	
retrograde	-844 Jul 26 j 09:51	17°V31'03					
opposition	-844 Oct 17 j 13:12	16°V31'25	-14°-41'-41	conjunction	-835 Apr 24 j 00:27	24°V37'21	-12°-40'-49
min. Earth dist.	-844 Oct 17 j 09:15	16°V31'36	47.85663 AU	minimum elong	-835 Apr 24 j 00:39	24°V37'22	12°40'49
direct	-843 Jan 07 j 01:34	15°V32'27		max. Earth dist.	-835 Apr 23 j 18:10	24°V37'00	49.26831 AU



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 5

Attention, astronomical year style is used: The year -835 in astronomical counting style is the year 836 BCE in historical counting style.

retrograde	-835 Aug 04 j 13:31	26° $\Upsilon$ 07'01		conjunction	-827 May 02 j 02:00	2° $\text{♁}$ 22'26	-11°-4'-22
opposition	-835 Oct 26 j 04:44	25° $\Upsilon$ 07'16	-13°-6'-51	minimum elong	-827 May 02 j 02:13	2° $\text{♁}$ 22'26	11°04'23
min. Earth dist.	-835 Oct 26 j 11:06	25° $\Upsilon$ 06'58	47.27820 AU	retrograde	-827 Aug 12 j 09:50	3° $\text{♁}$ 52'56	
direct	-834 Jan 15 j 15:10	24° $\Upsilon$ 07'57		opposition	-827 Nov 02 j 18:34	2° $\text{♁}$ 52'46	-11°-25'-53
				min. Earth dist.	-827 Nov 03 j 10:15	2° $\text{♁}$ 52'00	46.47974 AU
conjunction	-834 Apr 25 j 06:38	25° $\Upsilon$ 35'12	-12°-29'-35	direct	-826 Jan 23 j 08:36	1° $\text{♁}$ 52'48	
minimum elong	-834 Apr 25 j 06:50	25° $\Upsilon$ 35'12	12°29'36				
max. Earth dist.	-834 Apr 24 j 23:43	25° $\Upsilon$ 34'48	49.18716 AU	conjunction	-826 May 03 j 08:28	3° $\text{♁}$ 21'18	-10°-51'-11
retrograde	-834 Aug 05 j 15:44	27° $\Upsilon$ 04'56		minimum elong	-826 May 03 j 08:39	3° $\text{♁}$ 21'18	10°51'11
opposition	-834 Oct 27 j 09:22	26° $\Upsilon$ 05'08	-12°-55'-6	max. Earth dist.	-826 May 02 j 15:14	3° $\text{♁}$ 20'18	48.38610 AU
min. Earth dist.	-834 Oct 27 j 16:50	26° $\Upsilon$ 04'47	47.19284 AU	retrograde	-826 Aug 13 j 18:47	4° $\text{♁}$ 51'58	
direct	-833 Jan 16 j 23:17	25° $\Upsilon$ 05'45		opposition	-826 Nov 03 j 23:29	3° $\text{♁}$ 51'46	-11°-12'-4
				min. Earth dist.	-826 Nov 04 j 15:15	3° $\text{♁}$ 51'01	46.36508 AU
conjunction	-833 Apr 26 j 12:33	26° $\Upsilon$ 33'06	-12°-18'-8	direct	-825 Jan 24 j 10:53	2° $\text{♁}$ 51'44	
minimum elong	-833 Apr 26 j 12:46	26° $\Upsilon$ 33'07	12°18'08				
max. Earth dist.	-833 Apr 26 j 03:09	26° $\Upsilon$ 32'34	49.10084 AU	conjunction	-825 May 04 j 14:54	4° $\text{♁}$ 20'29	-10°-37'-45
retrograde	-833 Aug 06 j 22:25	28° $\Upsilon$ 02'55		minimum elong	-825 May 04 j 15:06	4° $\text{♁}$ 20'29	10°37'45
opposition	-833 Oct 28 j 14:01	27° $\Upsilon$ 03'05	-12°-43'-7	max. Earth dist.	-825 May 03 j 19:41	4° $\text{♁}$ 19'22	48.27117 AU
min. Earth dist.	-833 Oct 28 j 22:33	27° $\Upsilon$ 02'40	47.10249 AU	retrograde	-825 Aug 15 j 00:59	5° $\text{♁}$ 51'21	
direct	-832 Jan 18 j 03:26	26° $\Upsilon$ 03'36		opposition	-825 Nov 05 j 04:40	4° $\text{♁}$ 51'06	-10°-58'00
				min. Earth dist.	-825 Nov 05 j 22:37	4° $\text{♁}$ 50'14	46.24669 AU
conjunction	-832 Apr 26 j 18:48	27° $\Upsilon$ 31'05	-12°-6'-27	direct	-824 Jan 25 j 16:08	3° $\text{♁}$ 50'59	
minimum elong	-832 Apr 26 j 19:00	27° $\Upsilon$ 31'05	12°06'28				
max. Earth dist.	-832 Apr 26 j 08:18	27° $\Upsilon$ 30'29	49.00954 AU	conjunction	-824 May 04 j 21:49	5° $\text{♁}$ 19'59	-10°-24'-3
retrograde	-832 Aug 07 j 05:04	29° $\Upsilon$ 00'58		minimum elong	-824 May 04 j 22:01	5° $\text{♁}$ 20'00	10°24'03
opposition	-832 Oct 28 j 18:38	28° $\Upsilon$ 01'04	-12°-30'-53	max. Earth dist.	-824 May 04 j 02:07	5° $\text{♁}$ 18'51	48.15214 AU
min. Earth dist.	-832 Oct 29 j 05:19	28° $\Upsilon$ 00'34	47.00742 AU	retrograde	-824 Aug 15 j 03:41	6° $\text{♁}$ 51'02	
direct	-831 Jan 18 j 07:23	27° $\Upsilon$ 01'30		opposition	-824 Nov 05 j 09:45	5° $\text{♁}$ 50'45	-10°-43'-41
				min. Earth dist.	-824 Nov 06 j 04:39	5° $\text{♁}$ 49'50	46.12375 AU
conjunction	-831 Apr 28 j 01:02	28° $\Upsilon$ 29'07	-11°-54'-32	direct	-823 Jan 26 j 01:05	4° $\text{♁}$ 50'33	
minimum elong	-831 Apr 28 j 01:15	28° $\Upsilon$ 29'07	11°54'32	max. Earth dist.	-823 May 05 j 06:22	6° $\text{♁}$ 18'30	48.02832 AU
max. Earth dist.	-831 Apr 27 j 13:28	28° $\Upsilon$ 28'27	48.91398 AU				
retrograde	-831 Aug 08 j 11:07	29° $\Upsilon$ 59'05		conjunction	-823 May 06 j 04:42	6° $\text{♁}$ 19'48	-10°-10'-8
opposition	-831 Oct 29 j 23:16	28° $\Upsilon$ 59'07	-12°-18'-25	minimum elong	-823 May 06 j 04:53	6° $\text{♁}$ 19'48	10°10'09
min. Earth dist.	-831 Oct 30 j 10:10	28° $\Upsilon$ 58'36	46.90832 AU	retrograde	-823 Aug 16 j 10:13	7° $\text{♁}$ 51'03	
direct	-830 Jan 19 j 11:53	27° $\Upsilon$ 59'28		opposition	-823 Nov 06 j 15:04	6° $\text{♁}$ 50'41	-10°-29'-7
				min. Earth dist.	-823 Nov 07 j 11:19	6° $\text{♁}$ 49'42	45.99587 AU
conjunction	-830 Apr 29 j 07:02	29° $\Upsilon$ 27'13	-11°-42'-22	direct	-822 Jan 27 j 06:46	5° $\text{♁}$ 50'23	
minimum elong	-830 Apr 29 j 07:13	29° $\Upsilon$ 27'14	11°42'23				
max. Earth dist.	-830 Apr 28 j 17:24	29° $\Upsilon$ 26'27	48.81450 AU	conjunction	-822 May 07 j 11:37	7° $\text{♁}$ 19'52	-9°-55'-59
	-830 May 23 j 17:00	0° $\text{♁}$		minimum elong	-822 May 07 j 11:49	7° $\text{♁}$ 19'52	9°55'58
retrograde	-830 Aug 09 j 16:23	0° $\text{♁}$ 57'18		max. Earth dist.	-822 May 06 j 12:11	7° $\text{♁}$ 18'30	47.89923 AU
	-830 Oct 28 j 19:08	30° $\text{♁}$		retrograde	-822 Aug 17 j 17:19	8° $\text{♁}$ 51'19	
opposition	-830 Oct 31 j 04:04	29° $\Upsilon$ 57'16	-12°-5'-41	opposition	-822 Nov 07 j 20:36	7° $\text{♁}$ 50'52	-10°-14'-18
min. Earth dist.	-830 Oct 31 j 16:47	29° $\Upsilon$ 56'40	46.80570 AU	min. Earth dist.	-822 Nov 08 j 18:52	7° $\text{♁}$ 49'47	45.86265 AU
direct	-829 Jan 20 j 17:14	28° $\Upsilon$ 57'32		direct	-821 Jan 28 j 11:44	6° $\text{♁}$ 50'27	
	-829 Apr 11 j 18:31	0° $\text{♁}$					
conjunction	-829 Apr 30 j 13:20	0° $\text{♁}$ 25'27	-11°-29'-58	conjunction	-821 May 08 j 18:44	8° $\text{♁}$ 20'09	-9°-41'-35
minimum elong	-829 Apr 30 j 13:33	0° $\text{♁}$ 25'28	11°29'58	minimum elong	-821 May 08 j 18:55	8° $\text{♁}$ 20'10	9°41'36
max. Earth dist.	-829 Apr 29 j 23:43	0° $\text{♁}$ 24'40	48.71179 AU	max. Earth dist.	-821 May 07 j 17:50	8° $\text{♁}$ 18'42	47.76509 AU
retrograde	-829 Aug 10 j 19:35	1° $\text{♁}$ 55'39		retrograde	-821 Aug 19 j 01:28	9° $\text{♁}$ 51'47	
opposition	-829 Nov 01 j 08:46	0° $\text{♁}$ 55'34	-11°-52'-41	opposition	-821 Nov 09 j 01:54	8° $\text{♁}$ 51'14	-9°-59'-15
min. Earth dist.	-829 Nov 01 j 22:02	0° $\text{♁}$ 54'55	46.69991 AU	min. Earth dist.	-821 Nov 10 j 00:43	8° $\text{♁}$ 50'08	45.72448 AU
	-828 Jan 02 j 04:40	30° $\text{♁}$		direct	-820 Jan 29 j 15:54	7° $\text{♁}$ 50'40	
direct	-828 Jan 22 j 00:45	29° $\Upsilon$ 55'44		max. Earth dist.	-820 May 07 j 22:39	9° $\text{♁}$ 19'01	47.62603 AU
	-828 Feb 10 j 15:54	0° $\text{♁}$					
conjunction	-828 Apr 30 j 19:35	1° $\text{♁}$ 23'50	-11°-17'-17	conjunction	-820 May 09 j 01:55	9° $\text{♁}$ 20'37	-9°-26'-56
minimum elong	-828 Apr 30 j 19:46	1° $\text{♁}$ 23'50	11°17'18	minimum elong	-820 May 09 j 02:06	9° $\text{♁}$ 20'37	9°26'57
max. Earth dist.	-828 Apr 30 j 03:57	1° $\text{♁}$ 22'56	48.60614 AU	retrograde	-820 Aug 19 j 09:33	10° $\text{♁}$ 52'25	
retrograde	-828 Aug 11 j 02:07	2° $\text{♁}$ 54'10		opposition	-820 Nov 09 j 07:30	9° $\text{♁}$ 51'45	-9°-43'-55
opposition	-828 Nov 01 j 13:37	1° $\text{♁}$ 54'02	-11°-39'-25	min. Earth dist.	-820 Nov 10 j 08:29	9° $\text{♁}$ 50'32	45.58173 AU
min. Earth dist.	-828 Nov 02 j 03:41	1° $\text{♁}$ 53'22	46.59132 AU	direct	-819 Jan 29 j 21:03	8° $\text{♁}$ 51'02	
direct	-827 Jan 22 j 05:13	0° $\text{♁}$ 54'08		max. Earth dist.	-819 May 09 j 05:42	10° $\text{♁}$ 19'37	47.48267 AU
max. Earth dist.	-827 May 01 j 09:40	2° $\text{♁}$ 21'29	48.49754 AU	conjunction	-819 May 10 j 09:15	10° $\text{♁}$ 21'14	-9°-12'-3
				minimum elong	-819 May 10 j 09:25	10° $\text{♁}$ 21'14	9°12'04
				retrograde	-819 Aug 20 j 13:38	11° $\text{♁}$ 53'13	



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 6

Attention, astronomical year style is used: The year -819 in astronomical counting style is the year 820 BCE in historical counting style.

opposition	-819 Nov 10 j 13:02	10°852'25	-9°-28'-21	minimum elong	-811 May 18 j 23:41	18°835'31	7°03'23
min. Earth dist.	-819 Nov 11 j 14:37	10°851'10	45.43492 AU	retrograde	-811 Aug 29 j 01:31	20°809'44	
direct	-818 Jan 31 j 05:44	9°851'32		opposition	-811 Nov 18 j 14:08	19°808'03	-7°-13'-31
max. Earth dist.	-818 May 10 j 10:47	11°820'15	47.33564 AU	min. Earth dist.	-811 Nov 19 j 23:57	19°806'22	44.15475 AU
				direct	-810 Feb 08 j 06:19	18°805'59	
conjunction	-818 May 11 j 16:28	11°821'59	-8°-56'-55	max. Earth dist.	-810 May 18 j 16:24	19°836'49	46.05326 AU
minimum elong	-818 May 11 j 16:39	11°822'00	8°56'55				
retrograde	-818 Aug 21 j 19:35	12°854'11		conjunction	-810 May 20 j 08:07	19°839'12	-6°-46'-7
opposition	-818 Nov 11 j 18:41	11°853'16	-9°-12'-29	minimum elong	-810 May 20 j 08:16	19°839'12	6°46'08
min. Earth dist.	-818 Nov 12 j 21:21	11°851'57	45.28488 AU	retrograde	-810 Aug 30 j 12:02	21°813'46	
direct	-817 Feb 01 j 11:58	10°852'13		opposition	-810 Nov 19 j 21:05	20°811'56	-6°-55'-24
				min. Earth dist.	-810 Nov 21 j 09:10	20°810'08	43.97809 AU
conjunction	-817 May 12 j 23:51	12°822'55	-8°-41'-31	direct	-809 Feb 09 j 11:46	19°809'42	
minimum elong	-817 May 13 j 00:01	12°822'56	8°41'31	max. Earth dist.	-809 May 20 j 00:42	20°840'54	45.87555 AU
max. Earth dist.	-817 May 11 j 17:32	12°821'09	47.18544 AU				
retrograde	-817 Aug 23 j 01:41	13°855'22		conjunction	-809 May 21 j 16:55	20°843'19	-6°-28'-35
opposition	-817 Nov 13 j 00:35	12°854'18	-8°-56'-21	minimum elong	-809 May 21 j 17:04	20°843'20	6°28'35
min. Earth dist.	-817 Nov 14 j 04:40	12°852'55	45.13184 AU	retrograde	-809 Aug 31 j 19:39	22°818'13	
direct	-816 Feb 02 j 18:41	11°853'06		opposition	-809 Nov 21 j 04:06	21°816'15	-6°-37'00
max. Earth dist.	-816 May 12 j 00:11	13°822'15	47.03262 AU	min. Earth dist.	-809 Nov 22 j 16:46	21°814'25	43.79675 AU
				direct	-808 Feb 10 j 20:55	20°813'49	
conjunction	-816 May 13 j 07:26	13°824'05	-8°-25'-50	max. Earth dist.	-808 May 20 j 07:02	21°845'16	45.69330 AU
minimum elong	-816 May 13 j 07:37	13°824'06	8°25'50				
retrograde	-816 Aug 23 j 11:05	14°856'46		conjunction	-808 May 22 j 01:50	21°847'52	-6°-10'-47
opposition	-816 Nov 13 j 06:21	13°855'35	-8°-39'-55	minimum elong	-808 May 22 j 01:59	21°847'52	6°10'48
min. Earth dist.	-816 Nov 14 j 10:26	13°854'12	44.97632 AU	retrograde	-808 Sep 01 j 03:50	23°823'07	
direct	-815 Feb 02 j 22:25	12°854'13		opposition	-808 Nov 21 j 11:10	22°820'59	-6°-18'-20
max. Earth dist.	-815 May 13 j 06:08	14°823'36	46.87725 AU	min. Earth dist.	-808 Nov 23 j 01:29	22°819'03	43.61127 AU
				direct	-807 Feb 11 j 04:26	21°818'21	
conjunction	-815 May 14 j 15:06	14°825'33	-8°-9'-53	max. Earth dist.	-807 May 21 j 15:34	22°850'09	45.50700 AU
minimum elong	-815 May 14 j 15:16	14°825'33	8°09'54				
	-815 Jun 08 j 12:07	15°8		conjunction	-807 May 23 j 11:02	22°852'48	-5°-52'-43
retrograde	-815 Aug 24 j 19:46	15°858'29		minimum elong	-807 May 23 j 11:11	22°852'48	5°52'43
	-815 Nov 12 j 03:38	15°8		retrograde	-807 Sep 02 j 09:33	24°828'25	
opposition	-815 Nov 14 j 12:32	14°857'12	-8°-23'-12	opposition	-807 Nov 22 j 18:34	23°826'07	-5°-59'-22
min. Earth dist.	-815 Nov 15 j 18:28	14°855'43	44.81840 AU	min. Earth dist.	-807 Nov 24 j 10:12	23°824'07	43.42202 AU
direct	-814 Feb 04 j 02:57	13°855'42		direct	-806 Feb 12 j 13:58	22°823'16	
	-814 Apr 26 j 09:38	15°8		max. Earth dist.	-806 May 22 j 23:21	23°855'24	45.31737 AU
conjunction	-814 May 15 j 22:51	15°827'21	-7°-53'-40	conjunction	-806 May 24 j 20:03	23°858'08	-5°-34'-23
minimum elong	-814 May 15 j 23:01	15°827'22	7°53'41	minimum elong	-806 May 24 j 20:11	23°858'09	5°34'23
max. Earth dist.	-814 May 14 j 13:54	15°825'24	46.71947 AU	retrograde	-806 Sep 03 j 19:50	25°834'08	
retrograde	-814 Aug 26 j 01:10	17°800'35		opposition	-806 Nov 24 j 01:58	24°831'39	-5°-40'-7
opposition	-814 Nov 15 j 18:43	15°859'12	-8°-6'-12	min. Earth dist.	-806 Nov 25 j 17:52	24°829'38	43.22979 AU
min. Earth dist.	-814 Nov 17 j 00:55	15°857'42	44.65783 AU	direct	-805 Feb 13 j 19:31	23°828'35	
	-813 Jan 21 j 18:13	15°8		max. Earth dist.	-805 May 24 j 07:13	25°801'04	45.12479 AU
direct	-813 Feb 05 j 11:47	14°857'34					
	-813 Feb 20 j 04:13	15°8		conjunction	-805 May 26 j 05:28	25°803'54	-5°-15'-46
max. Earth dist.	-813 May 15 j 19:38	16°827'30	46.55887 AU	minimum elong	-805 May 26 j 05:36	25°803'54	5°15'46
				retrograde	-805 Sep 05 j 07:04	26°840'17	
conjunction	-813 May 17 j 06:46	16°829'36	-7°-37'-11	opposition	-805 Nov 25 j 09:37	25°837'37	-5°-20'-34
minimum elong	-813 May 17 j 06:56	16°829'36	7°37'11	min. Earth dist.	-805 Nov 27 j 03:26	25°835'30	43.03499 AU
retrograde	-813 Aug 27 j 08:23	18°803'08		direct	-804 Feb 14 j 23:59	24°834'19	
opposition	-813 Nov 17 j 00:57	17°801'40	-7°-48'-55	max. Earth dist.	-804 May 24 j 16:48	26°807'16	44.92991 AU
min. Earth dist.	-813 Nov 18 j 08:27	17°800'06	44.49425 AU				
direct	-812 Feb 06 j 18:42	15°859'53		conjunction	-804 May 26 j 15:12	26°810'07	-4°-56'-52
max. Earth dist.	-812 May 16 j 03:15	17°830'10	46.39468 AU	minimum elong	-804 May 26 j 15:19	26°810'07	4°56'53
				retrograde	-804 Sep 05 j 16:01	27°846'54	
conjunction	-812 May 17 j 15:08	17°832'18	-7°-20'-25	opposition	-804 Nov 25 j 17:27	26°844'04	-5°00'-43
minimum elong	-812 May 17 j 15:18	17°832'19	7°20'26	min. Earth dist.	-804 Nov 27 j 11:14	26°841'56	42.83800 AU
retrograde	-812 Aug 27 j 15:42	19°806'12		direct	-803 Feb 15 j 09:49	25°840'33	
opposition	-812 Nov 17 j 07:32	18°804'37	-7°-31'-21	max. Earth dist.	-803 May 26 j 00:28	27°813'51	44.73293 AU
min. Earth dist.	-812 Nov 18 j 16:49	18°802'57	44.32670 AU				
direct	-811 Feb 07 j 01:25	17°802'42		conjunction	-803 May 28 j 00:53	27°816'51	-4°-37'-42
max. Earth dist.	-811 May 17 j 10:05	18°833'16	46.22634 AU	minimum elong	-803 May 28 j 01:01	27°816'51	4°37'42
				retrograde	-803 Sep 07 j 01:32	28°854'03	
conjunction	-811 May 18 j 23:31	18°835'31	-7°-3'-24	opposition	-803 Nov 27 j 01:32	27°851'03	-4°-40'-34



# Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 7

Attention, astronomical year style is used: The year -803 in astronomical counting style is the year 804 BCE in historical counting style.

min. Earth dist.	-803 Nov 28 j 20:33	27° <del>8</del> 48'51	42.63914 AU	retrograde	-795 Sep 16 j 14:54	8° <del>II</del> 14'55	
direct	-802 Feb 16 j 18:55	26° <del>8</del> 47'19		opposition	-795 Dec 06 j 03:21	7° <del>II</del> 10'18	-1°-48'-35
max. Earth dist.	-802 May 27 j 10:31	28° <del>8</del> 21'08	44.53394 AU	min. Earth dist.	-795 Dec 08 j 08:19	7° <del>II</del> 07'30	40.93370 AU
				direct	-794 Feb 25 j 19:58	6° <del>II</del> 04'34	
conjunction	-802 May 29 j 11:02	28° <del>8</del> 24'08	-4°-18'-14	max. Earth dist.	-794 Jun 05 j 18:33	7° <del>II</del> 42'18	42.81978 AU
minimum elong	-802 May 29 j 11:08	28° <del>8</del> 24'09	4°18'15				
	-802 Aug 27 j 01:13	0° <del>II</del>		conjunction	-794 Jun 08 j 05:54	7° <del>II</del> 46'08	-1°-32'-37
retrograde	-802 Sep 08 j 09:16	0° <del>II</del> 01'49		minimum elong	-794 Jun 08 j 05:56	7° <del>II</del> 46'08	1°32'37
	-802 Sep 20 j 20:35	30° <del>R</del> 8		retrograde	-794 Sep 18 j 03:46	9° <del>II</del> 28'00	
opposition	-802 Nov 28 j 09:52	28° <del>8</del> 58'38	-4°-20'-7	opposition	-794 Dec 07 j 13:37	8° <del>II</del> 23'07	-1°-25'-46
min. Earth dist.	-802 Nov 30 j 05:52	28° <del>8</del> 56'22	42.43814 AU	min. Earth dist.	-794 Dec 09 j 18:37	8° <del>II</del> 20'19	40.70465 AU
direct	-801 Feb 18 j 05:08	27° <del>8</del> 54'42		direct	-793 Feb 27 j 06:04	7° <del>II</del> 17'05	
max. Earth dist.	-801 May 28 j 19:19	29° <del>8</del> 28'57	44.33275 AU	max. Earth dist.	-793 Jun 07 j 04:57	8° <del>II</del> 55'19	42.58987 AU
conjunction	-801 May 30 j 21:16	29° <del>8</del> 32'04	-3°-58'-30	conjunction	-793 Jun 09 j 18:23	8° <del>II</del> 59'19	-1°-10'-42
minimum elong	-801 May 30 j 21:22	29° <del>8</del> 32'04	3°58'30	minimum elong	-793 Jun 09 j 18:25	8° <del>II</del> 59'19	1°10'42
	-801 Jun 18 j 19:17	0° <del>II</del>		retrograde	-793 Sep 19 j 18:27	10° <del>II</del> 41'46	
retrograde	-801 Sep 09 j 19:24	1° <del>II</del> 10'13		opposition	-793 Dec 09 j 00:23	9° <del>II</del> 36'38	-1°-2'-38
opposition	-801 Nov 29 j 18:21	0° <del>II</del> 06'53	-3°-59'-21	min. Earth dist.	-793 Dec 11 j 07:03	9° <del>II</del> 33'44	40.47347 AU
min. Earth dist.	-801 Dec 01 j 14:51	0° <del>II</del> 04'35	42.23467 AU	direct	-792 Feb 28 j 15:48	8° <del>II</del> 30'17	
	-801 Dec 05 j 08:06	30° <del>R</del> 8		max. Earth dist.	-792 Jun 07 j 18:08	10° <del>II</del> 09'14	42.35799 AU
direct	-800 Feb 19 j 12:53	29° <del>8</del> 02'44					
	-800 May 03 j 10:27	0° <del>II</del>		conjunction	-792 Jun 10 j 07:22	10° <del>II</del> 13'14	0°-48'-30
max. Earth dist.	-800 May 29 j 04:24	0° <del>II</del> 37'26	44.12844 AU	minimum elong	-792 Jun 10 j 07:23	10° <del>II</del> 13'14	0°48'29
				retrograde	-792 Sep 20 j 06:22	11° <del>II</del> 56'18	
conjunction	-800 May 31 j 08:00	0° <del>II</del> 40'39	-3°-38'-28	opposition	-792 Dec 09 j 11:22	10° <del>II</del> 50'55	0°-39'-13
minimum elong	-800 May 31 j 08:06	0° <del>II</del> 40'40	3°38'28	min. Earth dist.	-792 Dec 11 j 18:21	10° <del>II</del> 47'59	40.24061 AU
retrograde	-800 Sep 10 j 07:11	2° <del>II</del> 19'19		direct	-791 Mar 01 j 04:56	9° <del>II</del> 44'16	
opposition	-800 Nov 30 j 03:10	1° <del>II</del> 15'49	-3°-38'-18	max. Earth dist.	-791 Jun 09 j 05:33	11° <del>II</del> 23'48	42.12471 AU
min. Earth dist.	-800 Dec 02 j 01:49	1° <del>II</del> 13'24	42.02786 AU				
direct	-799 Feb 19 j 19:33	0° <del>II</del> 11'27		conjunction	-791 Jun 11 j 20:28	11° <del>II</del> 27'57	0°-26'-2
max. Earth dist.	-799 May 30 j 14:52	1° <del>II</del> 46'40	43.92055 AU	minimum elong	-791 Jun 11 j 20:29	11° <del>II</del> 27'57	0°26'03
				retrograde	-791 Sep 21 j 19:16	13° <del>II</del> 11'40	
conjunction	-799 Jun 01 j 19:03	1° <del>II</del> 49'57	-3°-18'-11	opposition	-791 Dec 10 j 22:44	12° <del>II</del> 06'03	0°-15'-30
minimum elong	-799 Jun 01 j 19:08	1° <del>II</del> 49'57	3°18'11	min. Earth dist.	-791 Dec 13 j 06:20	12° <del>II</del> 03'03	40.00666 AU
retrograde	-799 Sep 11 j 20:01	3° <del>II</del> 29'07		direct	-790 Mar 02 j 15:58	10° <del>II</del> 59'06	
opposition	-799 Dec 01 j 12:17	2° <del>II</del> 25'26	-3°-16'-56	max. Earth dist.	-790 Jun 10 j 18:29	12° <del>II</del> 39'20	41.89014 AU
min. Earth dist.	-799 Dec 03 j 11:17	2° <del>II</del> 22'59	41.81716 AU				
direct	-798 Feb 21 j 03:38	1° <del>II</del> 20'49		conjunction	-790 Jun 13 j 09:55	12° <del>II</del> 43'32	0°-3'-22
max. Earth dist.	-798 May 31 j 23:20	2° <del>II</del> 56'27	43.70845 AU	minimum elong	-790 Jun 13 j 09:55	12° <del>II</del> 43'32	0°03'22
				behind sun begin	-790 Jun 13 j 03:25	12° <del>II</del> 43'08	
conjunction	-798 Jun 03 j 06:06	2° <del>II</del> 59'55	-2°-57'-37	behind sun end	-790 Jun 13 j 16:24	12° <del>II</del> 43'57	
minimum elong	-798 Jun 03 j 06:10	2° <del>II</del> 59'55	2°57'36	asc. node	-790 Aug 05 j 08:55	13° <del>II</del> 59'15	
retrograde	-798 Sep 13 j 08:01	4° <del>II</del> 39'36		retrograde	-790 Sep 23 j 06:33	14° <del>II</del> 27'58	
opposition	-798 Dec 02 j 21:43	3° <del>II</del> 35'42	-2°-55'-18	opposition	-790 Dec 12 j 10:32	13° <del>II</del> 22'06	0°08'29
min. Earth dist.	-798 Dec 04 j 22:46	3° <del>II</del> 33'09	41.60228 AU	min. Earth dist.	-790 Dec 14 j 19:24	13° <del>II</del> 19'02	39.77141 AU
direct	-797 Feb 22 j 12:24	2° <del>II</del> 30'50		direct	-789 Mar 04 j 03:42	12° <del>II</del> 14'52	
max. Earth dist.	-797 Jun 02 j 10:22	4° <del>II</del> 07'01	43.49200 AU	max. Earth dist.	-789 Jun 12 j 07:48	13° <del>II</del> 55'50	41.65429 AU
conjunction	-797 Jun 04 j 17:46	4° <del>II</del> 10'32	-2°-36'-46	conjunction	-789 Jun 14 j 23:50	14° <del>II</del> 00'06	0°19'43
minimum elong	-797 Jun 04 j 17:50	4° <del>II</del> 10'32	2°36'48	minimum elong	-789 Jun 14 j 23:50	14° <del>II</del> 00'06	0°19'43
retrograde	-797 Sep 14 j 16:41	5° <del>II</del> 50'44		retrograde	-789 Sep 24 j 21:30	15° <del>II</del> 45'16	
opposition	-797 Dec 04 j 07:18	4° <del>II</del> 46'36	-2°-33'-21	opposition	-789 Dec 13 j 22:24	14° <del>II</del> 39'10	0°32'46
min. Earth dist.	-797 Dec 06 j 09:28	4° <del>II</del> 43'59	41.38308 AU	min. Earth dist.	-789 Dec 16 j 07:18	14° <del>II</del> 36'04	39.53473 AU
direct	-796 Feb 24 j 01:01	3° <del>II</del> 41'28		direct	-788 Mar 04 j 13:11	13° <del>II</del> 31'38	
max. Earth dist.	-796 Jun 02 j 20:06	5° <del>II</del> 18'06	43.27149 AU	max. Earth dist.	-788 Jun 12 j 20:21	15° <del>II</del> 13'17	41.41643 AU
conjunction	-796 Jun 05 j 05:34	5° <del>II</del> 21'46	-2°-15'-40	conjunction	-788 Jun 15 j 14:15	15° <del>II</del> 17'43	0°42'57
minimum elong	-796 Jun 05 j 05:38	5° <del>II</del> 21'46	2°15'40	minimum elong	-788 Jun 15 j 14:13	15° <del>II</del> 17'42	0°42'58
retrograde	-796 Sep 15 j 03:39	7° <del>II</del> 02'30		retrograde	-788 Sep 25 j 13:41	17° <del>II</del> 03'37	
opposition	-796 Dec 04 j 17:08	5° <del>II</del> 58'08	-2°-11'-7	opposition	-788 Dec 14 j 10:55	15° <del>II</del> 57'17	0°57'21
min. Earth dist.	-796 Dec 06 j 20:10	5° <del>II</del> 55'27	41.16011 AU	min. Earth dist.	-788 Dec 16 j 21:55	15° <del>II</del> 54'04	39.29594 AU
direct	-795 Feb 24 j 11:12	4° <del>II</del> 52'42		direct	-787 Mar 05 j 22:37	14° <del>II</del> 49'27	
max. Earth dist.	-795 Jun 04 j 06:50	6° <del>II</del> 29'51	43.04713 AU	max. Earth dist.	-787 Jun 14 j 10:59	16° <del>II</del> 31'55	41.17610 AU
conjunction	-795 Jun 06 j 17:36	6° <del>II</del> 33'38	-1°-54'-17	conjunction	-787 Jun 17 j 05:01	16° <del>II</del> 36'22	1°06'27
minimum elong	-795 Jun 06 j 17:39	6° <del>II</del> 33'38	1°54'18	minimum elong	-787 Jun 17 j 04:59	16° <del>II</del> 36'22	1°06'28



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 8

Attention, astronomical year style is used: The year -787 in astronomical counting style is the year 788 BCE in historical counting style.

retrograde	-787 Sep 27 j 05:17	18° <b>II</b> 23'03		direct	-778 Mar 18 j 11:04	27° <b>II</b> 15'15	
opposition	-787 Dec 15 j 23:47	17° <b>II</b> 16'27	1°22'11	max. Earth dist.	-778 Jun 27 j 10:05	29° <b>II</b> 05'16	38.90977 AU
min. Earth dist.	-787 Dec 18 j 11:06	17° <b>II</b> 13'12	39.05443 AU				
direct	-786 Mar 07 j 13:07	16° <b>II</b> 08'17		conjunction	-778 Jun 30 j 13:03	29° <b>II</b> 10'42	4°48'03
max. Earth dist.	-786 Jun 15 j 23:44	17° <b>II</b> 51'27	40.93284 AU	minimum elong	-778 Jun 30 j 12:53	29° <b>II</b> 10'41	4°48'03
					-778 Jul 29 j 18:39	0° <b>III</b>	
conjunction	-786 Jun 18 j 20:10	17° <b>II</b> 56'06	1°30'12	retrograde	-778 Oct 10 j 12:48	1° <b>III</b> 05'00	
minimum elong	-786 Jun 18 j 20:07	17° <b>II</b> 56'06	1°30'12		-778 Dec 25 j 06:49	30° <b>R</b> <b>II</b>	
retrograde	-786 Sep 28 j 22:12	19° <b>II</b> 43'32		opposition	-778 Dec 28 j 14:42	29° <b>II</b> 55'23	5°16'58
opposition	-786 Dec 17 j 13:00	18° <b>II</b> 36'39	1°47'19	min. Earth dist.	-778 Dec 31 j 09:44	29° <b>II</b> 51'31	36.78971 AU
min. Earth dist.	-786 Dec 20 j 01:46	18° <b>II</b> 33'18	38.81006 AU	direct	-777 Mar 20 j 03:17	28° <b>II</b> 43'40	
direct	-785 Mar 09 j 03:01	17° <b>II</b> 28'09			-777 Jun 08 j 22:00	0° <b>III</b>	
max. Earth dist.	-785 Jun 17 j 14:55	19° <b>II</b> 12'07	40.68642 AU	max. Earth dist.	-777 Jun 29 j 05:10	0° <b>III</b> 34'44	38.65510 AU
conjunction	-785 Jun 20 j 11:55	19° <b>II</b> 16'51	1°54'11	conjunction	-777 Jul 02 j 08:18	0° <b>III</b> 40'13	5°13'35
minimum elong	-785 Jun 20 j 11:52	19° <b>II</b> 16'51	1°54'12	minimum elong	-777 Jul 02 j 08:07	0° <b>III</b> 40'13	5°13'36
retrograde	-785 Sep 30 j 12:22	21° <b>II</b> 05'04		retrograde	-777 Oct 12 j 08:00	2° <b>III</b> 35'32	
opposition	-785 Dec 19 j 02:47	19° <b>II</b> 57'53	2°12'42	opposition	-777 Dec 30 j 08:04	1° <b>III</b> 25'36	5°44'03
min. Earth dist.	-785 Dec 21 j 16:53	19° <b>II</b> 54'26	38.56257 AU	min. Earth dist.	-776 Jan 02 j 02:46	1° <b>III</b> 21'43	36.53654 AU
direct	-784 Mar 09 j 18:08	18° <b>II</b> 49'01		direct	-776 Mar 20 j 19:33	0° <b>III</b> 13'30	
max. Earth dist.	-784 Jun 18 j 05:30	20° <b>II</b> 33'43	40.43710 AU	max. Earth dist.	-776 Jun 29 j 23:33	2° <b>III</b> 05'34	38.40038 AU
conjunction	-784 Jun 21 j 03:58	20° <b>II</b> 38'36	2°18'25	conjunction	-776 Jul 03 j 04:08	2° <b>III</b> 11'12	5°39'13
minimum elong	-784 Jun 21 j 03:53	20° <b>II</b> 38'36	2°18'25	minimum elong	-776 Jul 03 j 03:57	2° <b>III</b> 11'12	5°39'14
retrograde	-784 Oct 01 j 02:42	22° <b>II</b> 27'37		retrograde	-776 Oct 13 j 05:24	4° <b>III</b> 07'34	
opposition	-784 Dec 19 j 16:45	21° <b>II</b> 20'06	2°38'20	opposition	-776 Dec 31 j 02:06	2° <b>III</b> 57'19	6°11'16
min. Earth dist.	-784 Dec 22 j 07:18	21° <b>II</b> 16'37	38.31251 AU	min. Earth dist.	-775 Jan 02 j 22:26	2° <b>III</b> 53'19	36.28332 AU
direct	-783 Mar 11 j 08:08	20° <b>II</b> 10'51		direct	-775 Mar 22 j 10:05	1° <b>III</b> 44'49	
max. Earth dist.	-783 Jun 19 j 20:26	21° <b>II</b> 56'19	40.18516 AU	max. Earth dist.	-775 Jul 01 j 20:25	3° <b>III</b> 38'03	38.14530 AU
conjunction	-783 Jun 22 j 20:28	22° <b>II</b> 01'20	2°42'52	conjunction	-775 Jul 05 j 00:39	3° <b>III</b> 43'43	6°04'58
minimum elong	-783 Jun 22 j 20:23	22° <b>II</b> 01'20	2°42'53	minimum elong	-775 Jul 05 j 00:27	3° <b>III</b> 43'42	6°05'00
retrograde	-783 Oct 02 j 18:35	23° <b>II</b> 51'10		retrograde	-775 Oct 15 j 02:30	5° <b>III</b> 41'10	
opposition	-783 Dec 21 j 07:22	22° <b>II</b> 43'19	3°04'14	opposition	-774 Jan 01 j 20:48	4° <b>III</b> 30'35	6°38'37
min. Earth dist.	-783 Dec 23 j 23:43	22° <b>II</b> 39'42	38.06030 AU	min. Earth dist.	-774 Jan 04 j 17:00	4° <b>III</b> 26'34	36.02955 AU
direct	-782 Mar 12 j 20:28	21° <b>II</b> 33'39		direct	-774 Mar 24 j 04:27	3° <b>III</b> 17'41	
max. Earth dist.	-782 Jun 21 j 13:10	23° <b>II</b> 20'00	39.93141 AU	max. Earth dist.	-774 Jul 03 j 15:29	5° <b>III</b> 11'57	37.88939 AU
conjunction	-782 Jun 24 j 13:11	23° <b>II</b> 25'03	3°07'32	conjunction	-774 Jul 06 j 21:32	5° <b>III</b> 17'48	6°30'49
minimum elong	-782 Jun 24 j 13:05	23° <b>II</b> 25'03	3°07'32	minimum elong	-774 Jul 06 j 21:19	5° <b>III</b> 17'47	6°30'49
retrograde	-782 Oct 04 j 11:58	25° <b>II</b> 15'43		retrograde	-774 Oct 17 j 02:17	7° <b>III</b> 16'21	
opposition	-782 Dec 22 j 22:15	24° <b>II</b> 07'31	3°30'22	opposition	-773 Jan 03 j 16:04	6° <b>III</b> 05'24	7°06'05
min. Earth dist.	-782 Dec 25 j 14:24	24° <b>II</b> 03'54	37.80662 AU	min. Earth dist.	-773 Jan 06 j 13:29	6° <b>III</b> 01'18	35.77498 AU
direct	-781 Mar 14 j 10:12	22° <b>II</b> 57'26		direct	-773 Mar 25 j 23:00	4° <b>III</b> 52'05	
max. Earth dist.	-781 Jun 23 j 04:34	24° <b>II</b> 44'34	39.67633 AU	max. Earth dist.	-773 Jul 05 j 13:18	6° <b>III</b> 47'33	37.63234 AU
conjunction	-781 Jun 26 j 06:27	24° <b>II</b> 49'47	3°32'24	conjunction	-773 Jul 08 j 19:23	6° <b>III</b> 53'27	6°56'44
minimum elong	-781 Jun 26 j 06:20	24° <b>II</b> 49'47	3°32'25	minimum elong	-773 Jul 08 j 19:09	6° <b>III</b> 53'26	6°56'45
retrograde	-781 Oct 06 j 06:44	26° <b>II</b> 41'19		retrograde	-773 Oct 19 j 00:02	8° <b>III</b> 53'07	
opposition	-781 Dec 24 j 13:32	25° <b>II</b> 32'44	3°56'43	opposition	-772 Jan 05 j 11:58	7° <b>III</b> 41'48	7°33'38
min. Earth dist.	-781 Dec 27 j 07:10	25° <b>II</b> 29'01	37.55219 AU	min. Earth dist.	-772 Jan 08 j 10:17	7° <b>III</b> 37'37	35.51936 AU
direct	-780 Mar 15 j 00:28	24° <b>II</b> 22'14		direct	-772 Mar 26 j 20:25	6° <b>III</b> 28'03	
max. Earth dist.	-780 Jun 23 j 22:47	26° <b>II</b> 10'21	39.42064 AU	max. Earth dist.	-772 Jul 06 j 10:22	8° <b>III</b> 24'36	37.37444 AU
conjunction	-780 Jun 27 j 00:18	26° <b>II</b> 15'35	3°57'27	conjunction	-772 Jul 09 j 17:43	8° <b>III</b> 30'40	7°22'42
minimum elong	-780 Jun 27 j 00:10	26° <b>II</b> 15'35	3°57'27	minimum elong	-772 Jul 09 j 17:28	8° <b>III</b> 30'39	7°22'42
retrograde	-780 Oct 07 j 00:24	28° <b>II</b> 07'59		retrograde	-772 Oct 19 j 23:40	10° <b>III</b> 31'27	
opposition	-780 Dec 25 j 05:28	26° <b>II</b> 59'04	4°23'17	opposition	-771 Jan 06 j 08:29	9° <b>III</b> 19'46	8°01'15
min. Earth dist.	-780 Dec 27 j 23:17	26° <b>II</b> 55'19	37.29753 AU	min. Earth dist.	-771 Jan 09 j 06:54	9° <b>III</b> 15'33	35.26320 AU
direct	-779 Mar 16 j 18:36	25° <b>II</b> 48'09		direct	-771 Mar 28 j 16:40	8° <b>III</b> 05'34	
max. Earth dist.	-779 Jun 25 j 15:33	27° <b>II</b> 37'09	39.16502 AU	max. Earth dist.	-771 Jul 08 j 08:32	10° <b>III</b> 03'16	37.11588 AU
conjunction	-779 Jun 28 j 18:18	27° <b>II</b> 42'31	4°22'41	conjunction	-771 Jul 11 j 16:36	10° <b>III</b> 09'27	7°48'41
minimum elong	-779 Jun 28 j 18:09	27° <b>II</b> 42'31	4°22'42	minimum elong	-771 Jul 11 j 16:20	10° <b>III</b> 09'26	7°48'42
retrograde	-779 Oct 08 j 19:56	29° <b>II</b> 35'51		retrograde	-771 Oct 21 j 20:25	12° <b>III</b> 11'24	
opposition	-779 Dec 26 j 21:48	28° <b>II</b> 26'35	4°50'02	opposition	-770 Jan 08 j 05:45	10° <b>III</b> 59'18	8°28'53
min. Earth dist.	-779 Dec 29 j 15:44	28° <b>II</b> 22'47	37.04335 AU	min. Earth dist.	-770 Jan 11 j 05:33	10° <b>III</b> 54'58	35.00681 AU



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 9

Attention, astronomical year style is used: The year -770 in astronomical counting style is the year 771 BCE in historical counting style.

direct	-770 Mar 30 j 12:24	9° $\mathring{E}$ 44'38		conjunction	-762 Jul 28 j 12:56	26° $\mathring{E}$ 15'09	11°36'57
max. Earth dist.	-770 Jul 10 j 08:15	11° $\mathring{E}$ 43'35	36.85748 AU	minimum elong	-762 Jul 28 j 12:34	26° $\mathring{E}$ 15'07	11°36'57
				retrograde	-762 Nov 08 j 00:25	28° $\mathring{E}$ 28'39	
conjunction	-770 Jul 13 j 16:07	11° $\mathring{E}$ 49'48	8°14'40	opposition	-761 Jan 24 j 12:40	27° $\mathring{E}$ 12'55	12°31'39
minimum elong	-770 Jul 13 j 15:51	11° $\mathring{E}$ 49'47	8°14'40	min. Earth dist.	-761 Jan 27 j 13:02	27° $\mathring{E}$ 08'17	32.78724 AU
retrograde	-770 Oct 23 j 19:43	13° $\mathring{E}$ 52'55		direct	-761 Apr 15 j 08:24	25° $\mathring{E}$ 54'02	
opposition	-769 Jan 10 j 03:24	12° $\mathring{E}$ 40'25	8°56'31	max. Earth dist.	-761 Jul 27 j 11:50	28° $\mathring{E}$ 05'22	34.62350 AU
min. Earth dist.	-769 Jan 13 j 02:41	12° $\mathring{E}$ 36'05	34.75097 AU				
direct	-769 Apr 01 j 08:46	11° $\mathring{E}$ 25'15		conjunction	-761 Jul 30 j 19:09	28° $\mathring{E}$ 12'07	12°00'53
max. Earth dist.	-769 Jul 12 j 07:06	13° $\mathring{E}$ 25'22	36.59970 AU	minimum elong	-761 Jul 30 j 18:45	28° $\mathring{E}$ 12'05	12°00'54
					-761 Sep 29 j 13:08	0° $\mathring{N}$	
conjunction	-769 Jul 15 j 16:18	13° $\mathring{E}$ 31'45	8°40'35	retrograde	-761 Nov 10 j 06:55	0° $\mathring{N}$ 27'00	
minimum elong	-769 Jul 15 j 16:01	13° $\mathring{E}$ 31'43	8°40'37		-761 Dec 23 j 02:48	30° $\mathring{R}$ $\mathring{E}$	
retrograde	-769 Oct 25 j 20:58	15° $\mathring{E}$ 36'04		opposition	-760 Jan 26 j 17:35	29° $\mathring{E}$ 10'51	12°57'06
opposition	-768 Jan 12 j 01:56	14° $\mathring{E}$ 23'08	9°24'05	min. Earth dist.	-760 Jan 29 j 17:17	29° $\mathring{E}$ 06'14	32.55318 AU
min. Earth dist.	-768 Jan 15 j 02:28	14° $\mathring{E}$ 18'42	34.49633 AU	direct	-760 Apr 16 j 12:59	27° $\mathring{E}$ 51'30	
direct	-768 Apr 02 j 03:46	13° $\mathring{E}$ 07'28			-760 Jul 26 j 16:42	0° $\mathring{N}$	
max. Earth dist.	-768 Jul 13 j 08:56	15° $\mathring{E}$ 08'57	36.34338 AU	max. Earth dist.	-760 Jul 28 j 17:39	0° $\mathring{N}$ 04'12	34.38751 AU
conjunction	-768 Jul 16 j 17:08	15° $\mathring{E}$ 15'19	9°06'25	conjunction	-760 Aug 01 j 01:58	0° $\mathring{N}$ 11'06	12°24'22
minimum elong	-768 Jul 16 j 16:50	15° $\mathring{E}$ 15'17	9°06'26	minimum elong	-760 Aug 01 j 01:35	0° $\mathring{N}$ 11'04	12°24'22
retrograde	-768 Oct 26 j 22:20	17° $\mathring{E}$ 20'51		retrograde	-760 Nov 11 j 16:00	2° $\mathring{N}$ 27'23	
opposition	-767 Jan 13 j 01:08	16° $\mathring{E}$ 07'30	9°51'34	opposition	-759 Jan 27 j 23:21	1° $\mathring{N}$ 10'48	13°22'03
min. Earth dist.	-767 Jan 16 j 01:01	16° $\mathring{E}$ 03'04	34.24357 AU	min. Earth dist.	-759 Jan 30 j 23:19	1° $\mathring{N}$ 06'09	32.32164 AU
direct	-767 Apr 04 j 03:39	14° $\mathring{E}$ 51'21			-759 Mar 25 j 00:41	30° $\mathring{R}$ $\mathring{E}$	
max. Earth dist.	-767 Jul 15 j 09:19	16° $\mathring{E}$ 54'04	36.08931 AU	direct	-759 Apr 18 j 16:50	29° $\mathring{E}$ 50'58	
					-759 May 13 j 05:58	0° $\mathring{N}$	
conjunction	-767 Jul 18 j 18:31	17° $\mathring{E}$ 00'34	9°32'07	max. Earth dist.	-759 Jul 31 j 02:38	2° $\mathring{N}$ 05'14	34.15415 AU
minimum elong	-767 Jul 18 j 18:11	17° $\mathring{E}$ 00'32	9°32'08				
retrograde	-767 Oct 29 j 03:15	19° $\mathring{E}$ 07'21		conjunction	-759 Aug 03 j 09:44	2° $\mathring{N}$ 12'05	12°47'19
opposition	-766 Jan 15 j 01:04	17° $\mathring{E}$ 53'35	10°18'54	minimum elong	-759 Aug 03 j 09:19	2° $\mathring{N}$ 12'03	12°47'20
min. Earth dist.	-766 Jan 18 j 01:04	17° $\mathring{E}$ 49'07	33.99361 AU	retrograde	-759 Nov 14 j 00:00	4° $\mathring{N}$ 29'46	
direct	-766 Apr 06 j 03:12	16° $\mathring{E}$ 36'58		opposition	-758 Jan 30 j 05:59	3° $\mathring{N}$ 12'44	13°46'26
max. Earth dist.	-766 Jul 17 j 12:32	18° $\mathring{E}$ 41'06	35.83804 AU	min. Earth dist.	-758 Feb 02 j 05:43	3° $\mathring{N}$ 08'04	32.09295 AU
				direct	-758 Apr 20 j 23:09	1° $\mathring{N}$ 52'25	
conjunction	-766 Jul 20 j 20:40	18° $\mathring{E}$ 47'35	9°57'38	max. Earth dist.	-758 Aug 02 j 10:43	4° $\mathring{N}$ 08'06	33.92408 AU
minimum elong	-766 Jul 20 j 20:20	18° $\mathring{E}$ 47'34	9°57'38				
retrograde	-766 Oct 31 j 05:44	20° $\mathring{E}$ 55'40		conjunction	-758 Aug 05 j 18:00	4° $\mathring{N}$ 15'03	13°09'41
opposition	-765 Jan 17 j 01:51	19° $\mathring{E}$ 41'29	10°46'02	minimum elong	-758 Aug 05 j 17:37	4° $\mathring{N}$ 15'01	13°09'41
min. Earth dist.	-765 Jan 20 j 01:56	19° $\mathring{E}$ 36'59	33.74658 AU	retrograde	-758 Nov 16 j 11:18	6° $\mathring{N}$ 34'07	
direct	-765 Apr 08 j 04:10	18° $\mathring{E}$ 24'25		opposition	-757 Feb 01 j 13:23	5° $\mathring{N}$ 16'39	14°10'10
max. Earth dist.	-765 Jul 19 j 15:09	20° $\mathring{E}$ 29'55	35.58990 AU	min. Earth dist.	-757 Feb 04 j 12:20	5° $\mathring{N}$ 11'59	31.86787 AU
				direct	-757 Apr 23 j 06:54	3° $\mathring{N}$ 55'50	
conjunction	-765 Jul 22 j 23:32	20° $\mathring{E}$ 36'29	10°22'54	max. Earth dist.	-757 Aug 04 j 21:03	6° $\mathring{N}$ 13'04	33.69779 AU
minimum elong	-765 Jul 22 j 23:11	20° $\mathring{E}$ 36'27	10°22'55				
retrograde	-765 Nov 02 j 10:01	22° $\mathring{E}$ 45'52		conjunction	-757 Aug 08 j 03:18	6° $\mathring{N}$ 19'59	13°31'23
opposition	-764 Jan 19 j 03:10	21° $\mathring{E}$ 31'18	11°12'55	minimum elong	-757 Aug 08 j 02:54	6° $\mathring{N}$ 19'57	13°31'24
min. Earth dist.	-764 Jan 22 j 02:37	21° $\mathring{E}$ 26'50	33.50278 AU	retrograde	-757 Nov 18 j 20:54	8° $\mathring{N}$ 40'26	
direct	-764 Apr 09 j 05:07	20° $\mathring{E}$ 13'47		opposition	-756 Feb 03 j 21:43	7° $\mathring{N}$ 22'31	14°33'10
max. Earth dist.	-764 Jul 20 j 19:02	22° $\mathring{E}$ 20'43	35.34460 AU	min. Earth dist.	-756 Feb 06 j 20:54	7° $\mathring{N}$ 17'49	31.64702 AU
				direct	-756 Apr 24 j 14:33	6° $\mathring{N}$ 01'13	
conjunction	-764 Jul 24 j 03:19	22° $\mathring{E}$ 27'21	10°47'55	max. Earth dist.	-756 Aug 06 j 07:56	8° $\mathring{N}$ 19'59	33.47640 AU
minimum elong	-764 Jul 24 j 02:59	22° $\mathring{E}$ 27'19	10°47'55				
retrograde	-764 Nov 03 j 13:28	24° $\mathring{E}$ 38'05		conjunction	-756 Aug 09 j 13:10	8° $\mathring{N}$ 26'53	13°52'20
opposition	-763 Jan 20 j 05:36	23° $\mathring{E}$ 23'08	11°39'30	minimum elong	-756 Aug 09 j 12:47	8° $\mathring{N}$ 26'51	13°52'21
min. Earth dist.	-763 Jan 23 j 05:53	23° $\mathring{E}$ 18'34	33.26181 AU	retrograde	-756 Nov 20 j 07:50	10° $\mathring{N}$ 48'43	
direct	-763 Apr 11 j 05:42	22° $\mathring{E}$ 05'10		opposition	-755 Feb 05 j 06:53	9° $\mathring{N}$ 30'22	14°55'20
max. Earth dist.	-763 Jul 23 j 00:01	24° $\mathring{E}$ 13'34	35.10204 AU	min. Earth dist.	-755 Feb 08 j 04:13	9° $\mathring{N}$ 25'46	31.43147 AU
				direct	-755 Apr 26 j 23:29	8° $\mathring{N}$ 08'36	
conjunction	-763 Jul 26 j 07:38	24° $\mathring{E}$ 20'13	11°12'36	max. Earth dist.	-755 Aug 08 j 19:15	10° $\mathring{N}$ 28'52	33.26063 AU
minimum elong	-763 Jul 26 j 07:15	24° $\mathring{E}$ 20'11	11°12'37				
retrograde	-763 Nov 05 j 18:53	26° $\mathring{E}$ 32'20		conjunction	-755 Aug 11 j 23:42	10° $\mathring{N}$ 35'46	14°12'27
opposition	-762 Jan 22 j 08:43	25° $\mathring{E}$ 17'00	12°05'46	minimum elong	-755 Aug 11 j 23:18	10° $\mathring{N}$ 35'44	14°12'28
min. Earth dist.	-762 Jan 25 j 07:59	25° $\mathring{E}$ 12'28	33.02339 AU	retrograde	-755 Nov 22 j 18:26	12° $\mathring{N}$ 59'00	
direct	-762 Apr 13 j 07:15	23° $\mathring{E}$ 58'35		opposition	-754 Feb 07 j 17:04	11° $\mathring{N}$ 40'14	15°16'35
max. Earth dist.	-762 Jul 25 j 04:33	26° $\mathring{E}$ 08'22	34.86168 AU	min. Earth dist.	-754 Feb 10 j 14:18	11° $\mathring{N}$ 35'36	31.22202 AU
				direct	-754 Apr 29 j 06:59	10° $\mathring{N}$ 18'01	



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 10

Attention, astronomical year style is used: The year -754 in astronomical counting style is the year 755 BCE in historical counting style.

max. Earth dist.	-754 Aug 11 j 08:52	12° $\Omega$ 39'55	33.05152 AU	opposition	-746 Feb 26 j 09:48	0° $\Upsilon$ 14'05	17°23'11
				min. Earth dist.	-746 Feb 28 j 19:15	0° $\Upsilon$ 10'06	29.79654 AU
conjunction	-754 Aug 14 j 11:06	12° $\Omega$ 46'41	14°31'39		-746 Mar 06 j 21:46	30° $\Upsilon$ 00'	
minimum elong	-754 Aug 14 j 10:44	12° $\Omega$ 46'39	14°31'39	direct	-746 May 17 j 14:54	28° $\Omega$ 49'07	
	-754 Oct 30 j 08:04	15° $\Omega$			-746 Jul 24 j 03:22	0° $\Upsilon$	
retrograde	-754 Nov 25 j 06:37	15° $\Omega$ 11'18		max. Earth dist.	-746 Aug 30 j 20:27	1° $\Upsilon$ 22'42	31.63517 AU
	-754 Dec 21 j 15:24	15° $\Upsilon$ 00'					
opposition	-753 Feb 10 j 03:52	13° $\Omega$ 52'09	15°36'49	conjunction	-746 Sep 02 j 09:47	1° $\Upsilon$ 28'40	16°22'53
min. Earth dist.	-753 Feb 12 j 22:56	13° $\Omega$ 47'39	31.01934 AU	minimum elong	-746 Sep 02 j 09:34	1° $\Upsilon$ 28'39	16°22'53
direct	-753 May 01 j 16:20	12° $\Omega$ 29'31		retrograde	-746 Dec 14 j 16:42	4° $\Upsilon$ 03'28	
max. Earth dist.	-753 Aug 13 j 21:37	14° $\Omega$ 52'54	32.84948 AU	opposition	-745 Mar 01 j 03:36	2° $\Upsilon$ 41'43	17°32'25
				min. Earth dist.	-745 Mar 03 j 12:20	2° $\Upsilon$ 37'46	29.65000 AU
conjunction	-753 Aug 16 j 23:20	14° $\Omega$ 59'42	14°49'50	direct	-745 May 20 j 07:25	1° $\Upsilon$ 16'28	
minimum elong	-753 Aug 16 j 22:57	14° $\Omega$ 59'40	14°49'50	max. Earth dist.	-745 Sep 02 j 16:46	3° $\Upsilon$ 51'17	31.49134 AU
	-753 Aug 17 j 02:39	15° $\Omega$					
retrograde	-753 Nov 27 j 19:42	17° $\Omega$ 25'43		conjunction	-745 Sep 05 j 03:35	3° $\Upsilon$ 57'03	16°30'27
opposition	-752 Feb 12 j 15:46	16° $\Omega$ 06'12	15°55'56	minimum elong	-745 Sep 05 j 03:23	3° $\Upsilon$ 57'02	16°30'27
min. Earth dist.	-752 Feb 15 j 10:22	16° $\Omega$ 01'42	30.82388 AU	retrograde	-745 Dec 17 j 11:46	6° $\Upsilon$ 32'51	
	-752 Mar 30 j 22:07	15° $\Upsilon$ 00'		opposition	-744 Mar 02 j 22:08	5° $\Upsilon$ 10'47	17°39'56
direct	-752 May 03 j 01:12	14° $\Omega$ 43'12		min. Earth dist.	-744 Mar 05 j 03:53	5° $\Upsilon$ 07'02	29.51163 AU
	-752 Jun 04 j 17:56	15° $\Omega$		direct	-744 May 22 j 02:18	3° $\Upsilon$ 45'15	
max. Earth dist.	-752 Aug 15 j 13:22	17° $\Omega$ 08'15	32.65480 AU	max. Earth dist.	-744 Sep 04 j 12:49	6° $\Upsilon$ 21'10	31.35626 AU
conjunction	-752 Aug 18 j 12:18	17° $\Omega$ 14'51	15°06'56	conjunction	-744 Sep 06 j 21:42	6° $\Upsilon$ 26'47	16°36'21
minimum elong	-752 Aug 18 j 11:58	17° $\Omega$ 14'49	15°06'56	minimum elong	-744 Sep 06 j 21:33	6° $\Upsilon$ 26'46	16°36'21
retrograde	-752 Nov 29 j 09:04	19° $\Omega$ 42'15		retrograde	-744 Dec 19 j 05:38	9° $\Upsilon$ 03'30	
opposition	-751 Feb 14 j 04:36	18° $\Omega$ 22'24	16°13'53	opposition	-743 Mar 05 j 17:25	7° $\Upsilon$ 41'09	17°45'37
min. Earth dist.	-751 Feb 16 j 21:22	18° $\Omega$ 18'01	30.63551 AU	min. Earth dist.	-743 Mar 07 j 21:48	7° $\Upsilon$ 37'29	29.38231 AU
direct	-751 May 05 j 13:32	16° $\Omega$ 59'03		direct	-743 May 24 j 19:39	6° $\Upsilon$ 15'21	
max. Earth dist.	-751 Aug 18 j 03:31	19° $\Omega$ 25'34	32.46738 AU	max. Earth dist.	-743 Sep 07 j 11:05	8° $\Upsilon$ 52'27	31.23100 AU
conjunction	-751 Aug 21 j 02:00	19° $\Omega$ 32'10	15°22'52	conjunction	-743 Sep 09 j 16:20	8° $\Upsilon$ 57'44	16°40'31
minimum elong	-751 Aug 21 j 01:39	19° $\Omega$ 32'08	15°22'53	minimum elong	-743 Sep 09 j 16:12	8° $\Upsilon$ 57'44	16°40'32
retrograde	-751 Dec 02 j 01:16	22° $\Omega$ 00'56		retrograde	-743 Dec 22 j 00:35	11° $\Upsilon$ 35'17	
opposition	-750 Feb 16 j 18:10	20° $\Omega$ 40'46	16°30'33	opposition	-742 Mar 08 j 13:08	10° $\Upsilon$ 12'40	17°49'24
min. Earth dist.	-750 Feb 19 j 09:48	20° $\Omega$ 36'26	30.45428 AU	min. Earth dist.	-742 Mar 10 j 14:23	10° $\Upsilon$ 09'12	29.26280 AU
direct	-750 May 08 j 00:50	19° $\Omega$ 17'04		direct	-742 May 27 j 15:16	8° $\Upsilon$ 46'39	
max. Earth dist.	-750 Aug 20 j 20:44	21° $\Omega$ 45'12	32.28696 AU	max. Earth dist.	-742 Sep 10 j 07:59	11° $\Upsilon$ 24'41	31.11627 AU
conjunction	-750 Aug 23 j 16:36	21° $\Omega$ 51'37	15°37'35	conjunction	-742 Sep 12 j 11:17	11° $\Upsilon$ 29'48	16°42'53
minimum elong	-750 Aug 23 j 16:17	21° $\Omega$ 51'35	15°37'36	minimum elong	-742 Sep 12 j 11:12	11° $\Upsilon$ 29'48	16°42'52
retrograde	-750 Dec 04 j 16:33	24° $\Omega$ 21'43		retrograde	-742 Dec 24 j 20:35	14° $\Upsilon$ 08'08	
opposition	-749 Feb 19 j 08:51	23° $\Omega$ 01'14	16°45'54	opposition	-741 Mar 11 j 09:32	12° $\Upsilon$ 45'17	17°51'12
min. Earth dist.	-749 Feb 21 j 23:24	22° $\Omega$ 56'57	30.27965 AU	min. Earth dist.	-741 Mar 13 j 08:25	12° $\Upsilon$ 41'59	29.15397 AU
direct	-749 May 10 j 14:18	21° $\Omega$ 37'13		direct	-741 May 30 j 09:07	11° $\Upsilon$ 19'05	
max. Earth dist.	-749 Aug 23 j 12:44	24° $\Omega$ 06'43	32.11341 AU	max. Earth dist.	-741 Sep 13 j 07:33	13° $\Upsilon$ 58'12	31.01280 AU
conjunction	-749 Aug 26 j 07:50	24° $\Omega$ 13'07	15°51'01	conjunction	-741 Sep 15 j 06:41	14° $\Upsilon$ 02'55	16°43'23
minimum elong	-749 Aug 26 j 07:31	24° $\Omega$ 13'05	15°51'02	minimum elong	-741 Sep 15 j 06:38	14° $\Upsilon$ 02'55	16°43'23
retrograde	-749 Dec 07 j 11:13	26° $\Omega$ 44'29		retrograde	-741 Dec 27 j 15:14	16° $\Upsilon$ 41'57	
opposition	-748 Feb 22 j 00:15	25° $\Omega$ 23'41	16°59'50	opposition	-740 Mar 13 j 06:30	15° $\Upsilon$ 18'55	17°50'58
min. Earth dist.	-748 Feb 24 j 12:57	25° $\Omega$ 19'31	30.11175 AU	min. Earth dist.	-740 Mar 15 j 02:22	15° $\Upsilon$ 15'50	29.05614 AU
direct	-748 May 12 j 06:09	23° $\Omega$ 59'21		direct	-740 Jun 01 j 06:08	13° $\Upsilon$ 52'37	
max. Earth dist.	-748 Aug 25 j 07:11	26° $\Omega$ 30'20	31.94668 AU	max. Earth dist.	-740 Sep 15 j 05:17	16° $\Upsilon$ 32'30	30.92096 AU
conjunction	-748 Aug 27 j 23:58	26° $\Omega$ 36'33	16°03'06	conjunction	-740 Sep 17 j 02:18	16° $\Upsilon$ 37'02	16°41'58
minimum elong	-748 Aug 27 j 23:42	26° $\Omega$ 36'31	16°03'06	minimum elong	-740 Sep 17 j 02:18	16° $\Upsilon$ 37'02	16°41'57
retrograde	-748 Dec 09 j 03:33	29° $\Omega$ 09'08		retrograde	-740 Dec 29 j 12:38	19° $\Upsilon$ 16'42	
opposition	-747 Feb 23 j 16:45	27° $\Omega$ 48'01	17°12'17	opposition	-739 Mar 16 j 03:52	17° $\Upsilon$ 53'32	17°48'40
min. Earth dist.	-747 Feb 26 j 04:46	27° $\Omega$ 43'52	29.95058 AU	min. Earth dist.	-739 Mar 17 j 20:34	17° $\Upsilon$ 50'40	28.96973 AU
direct	-747 May 14 j 21:44	26° $\Omega$ 23'22		direct	-739 Jun 04 j 01:53	16° $\Upsilon$ 27'10	
max. Earth dist.	-747 Aug 28 j 01:14	28° $\Omega$ 55'40	31.78722 AU	max. Earth dist.	-739 Sep 18 j 05:30	19° $\Upsilon$ 07'58	30.84066 AU
conjunction	-747 Aug 30 j 16:27	29° $\Omega$ 01'47	16°13'45	conjunction	-739 Sep 19 j 22:13	19° $\Upsilon$ 12'05	16°38'37
minimum elong	-747 Aug 30 j 16:11	29° $\Omega$ 01'45	16°13'45	minimum elong	-739 Sep 19 j 22:15	19° $\Upsilon$ 12'05	16°38'38
	-747 Sep 25 j 07:57	0° $\Upsilon$		retrograde	-738 Jan 01 j 08:30	21° $\Upsilon$ 52'17	
retrograde	-747 Dec 11 j 22:28	1° $\Upsilon$ 35'31		opposition	-738 Mar 19 j 01:45	20° $\Upsilon$ 29'02	17°44'16



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 11

Attention, astronomical year style is used: The year -738 in astronomical counting style is the year 739 BCE in historical counting style.

min. Earth dist.	-738 Mar 20 j 16:08	20° $\mathring{M}$ 26'19	28.89425 AU	min. Earth dist.	-730 Apr 10 j 05:43	11° $\mathring{A}$ 22'59	28.66360 AU
direct	-738 Jun 06 j 22:22	19° $\mathring{M}$ 02'39		direct	-730 Jun 28 j 12:51	9° $\mathring{A}$ 58'14	
max. Earth dist.	-738 Sep 21 j 03:52	21° $\mathring{M}$ 44'03	30.77162 AU				
conjunction	-738 Sep 22 j 18:20	21° $\mathring{M}$ 47'57	16°33'21	conjunction	-730 Oct 13 j 11:25	12° $\mathring{A}$ 42'11	14°43'28
minimum elong	-738 Sep 22 j 18:24	21° $\mathring{M}$ 47'57	16°33'20	minimum elong	-730 Oct 13 j 11:44	12° $\mathring{A}$ 42'13	14°43'27
retrograde	-737 Jan 04 j 06:52	24° $\mathring{M}$ 28'37		max. Earth dist.	-730 Oct 12 j 23:51	12° $\mathring{A}$ 41'00	30.60162 AU
opposition	-737 Mar 21 j 23:46	23° $\mathring{M}$ 05'17	17°37'47	retrograde	-729 Jan 25 j 03:57	15° $\mathring{A}$ 22'28	
min. Earth dist.	-737 Mar 23 j 10:37	23° $\mathring{M}$ 02'49	28.82957 AU	opposition	-729 Apr 12 j 13:48	13° $\mathring{A}$ 59'07	15°33'11
direct	-737 Jun 09 j 20:26	21° $\mathring{M}$ 38'55		min. Earth dist.	-729 Apr 13 j 00:20	13° $\mathring{A}$ 58'23	28.68311 AU
max. Earth dist.	-737 Sep 24 j 04:16	24° $\mathring{M}$ 21'00	30.71338 AU	direct	-729 Jul 01 j 12:46	12° $\mathring{A}$ 33'33	
conjunction	-737 Sep 25 j 14:48	24° $\mathring{M}$ 24'30	16°26'09	conjunction	-729 Oct 16 j 06:15	15° $\mathring{A}$ 16'48	14°21'44
minimum elong	-737 Sep 25 j 14:55	24° $\mathring{M}$ 24'31	16°26'09	minimum elong	-729 Oct 16 j 06:37	15° $\mathring{A}$ 16'50	14°21'44
retrograde	-736 Jan 07 j 03:24	27° $\mathring{M}$ 05'31		max. Earth dist.	-729 Oct 15 j 21:24	15° $\mathring{A}$ 15'55	30.63067 AU
opposition	-736 Mar 23 j 22:27	25° $\mathring{M}$ 42'08	17°29'13	retrograde	-728 Jan 27 j 23:10	17° $\mathring{A}$ 56'35	
min. Earth dist.	-736 Mar 25 j 07:23	25° $\mathring{M}$ 39'49	28.77523 AU	opposition	-728 Apr 14 j 11:56	16° $\mathring{A}$ 33'20	15°09'03
direct	-736 Jun 11 j 18:42	24° $\mathring{M}$ 15'49		min. Earth dist.	-728 Apr 14 j 18:38	16° $\mathring{A}$ 32'52	28.71490 AU
max. Earth dist.	-736 Sep 26 j 03:08	26° $\mathring{M}$ 58'18	30.66583 AU	direct	-728 Jul 03 j 09:43	15° $\mathring{A}$ 07'59	
conjunction	-736 Sep 27 j 11:05	27° $\mathring{M}$ 01'33	16°17'01	conjunction	-728 Oct 18 j 00:44	17° $\mathring{A}$ 50'28	13°58'24
minimum elong	-736 Sep 27 j 11:14	27° $\mathring{M}$ 01'33	16°17'01	minimum elong	-728 Oct 18 j 01:06	17° $\mathring{A}$ 50'30	13°58'23
retrograde	-735 Jan 09 j 01:51	29° $\mathring{M}$ 42'48		max. Earth dist.	-728 Oct 17 j 20:41	17° $\mathring{A}$ 50'04	30.67216 AU
opposition	-735 Mar 26 j 21:13	28° $\mathring{M}$ 19'23	17°18'36	retrograde	-727 Jan 29 j 16:47	20° $\mathring{A}$ 29'41	
min. Earth dist.	-735 Mar 28 j 02:09	28° $\mathring{M}$ 17'21	28.73109 AU	opposition	-727 Apr 17 j 09:45	19° $\mathring{A}$ 06'34	14°43'13
direct	-735 Jun 14 j 17:47	26° $\mathring{M}$ 53'07		min. Earth dist.	-727 Apr 17 j 13:18	19° $\mathring{A}$ 06'20	28.75879 AU
max. Earth dist.	-735 Sep 29 j 03:05	29° $\mathring{M}$ 35'59	30.62858 AU	direct	-727 Jul 06 j 07:23	17° $\mathring{A}$ 41'28	
conjunction	-735 Sep 30 j 07:39	29° $\mathring{M}$ 38'53	16°06'00	conjunction	-727 Oct 20 j 18:42	20° $\mathring{A}$ 23'07	13°33'31
minimum elong	-735 Sep 30 j 07:51	29° $\mathring{M}$ 38'54	16°06'01	minimum elong	-727 Oct 20 j 19:06	20° $\mathring{A}$ 23'09	13°33'31
retrograde	-735 Oct 08 j 23:38	0° $\mathring{A}$		max. Earth dist.	-727 Oct 20 j 17:15	20° $\mathring{A}$ 22'58	30.72587 AU
opposition	-734 Jan 11 j 22:58	2° $\mathring{A}$ 20'15		retrograde	-726 Feb 01 j 11:13	23° $\mathring{A}$ 01'41	
min. Earth dist.	-734 Mar 29 j 20:06	0° $\mathring{A}$ 56'50	17°05'56	opposition	-726 Apr 20 j 06:52	21° $\mathring{A}$ 38'45	14°15'47
direct	-734 Mar 30 j 23:15	0° $\mathring{A}$ 54'55	28.69698 AU	min. Earth dist.	-726 Apr 20 j 06:14	21° $\mathring{A}$ 38'48	28.81464 AU
max. Earth dist.	-734 May 05 j 12:11	30° $\mathring{R}$ $\mathring{M}$		direct	-726 Jul 09 j 04:20	20° $\mathring{A}$ 13'56	
conjunction	-734 Jun 17 j 16:02	29° $\mathring{M}$ 30'38		conjunction	-726 Oct 23 j 12:21	22° $\mathring{A}$ 54'40	13°07'14
minimum elong	-734 Jul 29 j 09:13	0° $\mathring{A}$		minimum elong	-726 Oct 23 j 12:44	22° $\mathring{A}$ 54'42	13°07'13
retrograde	-734 Oct 02 j 02:31	2° $\mathring{A}$ 13'41	30.60177 AU	max. Earth dist.	-726 Oct 23 j 15:22	22° $\mathring{A}$ 54'58	30.79126 AU
opposition	-734 Oct 03 j 04:07	2° $\mathring{A}$ 16'17	15°53'07	retrograde	-725 Feb 04 j 03:27	25° $\mathring{A}$ 32'32	
min. Earth dist.	-734 Oct 03 j 04:20	2° $\mathring{A}$ 16'19	15°53'06	opposition	-725 Apr 23 j 03:55	24° $\mathring{A}$ 09'48	13°46'52
direct	-733 Jan 14 j 21:17	4° $\mathring{A}$ 57'40		min. Earth dist.	-725 Apr 23 j 00:46	24° $\mathring{A}$ 10'01	28.88175 AU
opposition	-733 Apr 01 j 19:02	3° $\mathring{A}$ 34'14	16°51'16	direct	-725 Jul 12 j 01:18	22° $\mathring{A}$ 45'19	
min. Earth dist.	-733 Apr 02 j 18:14	3° $\mathring{A}$ 32'36	28.67284 AU	conjunction	-725 Oct 26 j 05:14	25° $\mathring{A}$ 25'03	12°39'36
direct	-733 Jun 20 j 16:45	2° $\mathring{A}$ 08'07		minimum elong	-725 Oct 26 j 05:38	25° $\mathring{A}$ 25'05	12°39'36
max. Earth dist.	-733 Oct 05 j 01:48	4° $\mathring{A}$ 51'15	30.58520 AU	max. Earth dist.	-725 Oct 26 j 10:48	25° $\mathring{A}$ 25'36	30.86775 AU
conjunction	-733 Oct 06 j 00:23	4° $\mathring{A}$ 53'32	15°38'23	retrograde	-724 Feb 06 j 21:47	28° $\mathring{A}$ 02'09	
minimum elong	-733 Oct 06 j 00:38	4° $\mathring{A}$ 53'34	15°38'23	opposition	-724 Apr 25 j 00:23	26° $\mathring{A}$ 39'37	13°16'34
retrograde	-732 Jan 17 j 17:08	7° $\mathring{A}$ 34'49		min. Earth dist.	-724 Apr 24 j 16:54	26° $\mathring{A}$ 40'08	28.95957 AU
opposition	-732 Apr 03 j 18:05	6° $\mathring{A}$ 11'22	16°34'37	direct	-724 Jul 13 j 21:26	25° $\mathring{A}$ 15'28	
min. Earth dist.	-732 Apr 04 j 15:09	6° $\mathring{A}$ 09'53	28.65897 AU	conjunction	-724 Oct 27 j 21:48	27° $\mathring{A}$ 54'09	12°10'46
direct	-732 Jun 22 j 14:47	4° $\mathring{A}$ 45'22		minimum elong	-724 Oct 27 j 22:11	27° $\mathring{A}$ 54'11	12°10'46
conjunction	-732 Oct 07 j 20:27	7° $\mathring{A}$ 30'24	15°21'50	max. Earth dist.	-724 Oct 28 j 07:11	27° $\mathring{A}$ 55'04	30.95456 AU
minimum elong	-732 Oct 07 j 20:43	7° $\mathring{A}$ 30'26	15°21'50	retrograde	-724 Dec 28 j 11:28	0° $\mathring{M}$	
max. Earth dist.	-732 Oct 07 j 01:40	7° $\mathring{A}$ 28'30	30.57943 AU	opposition	-723 Feb 08 j 13:51	0° $\mathring{M}$ 30'25	
retrograde	-731 Jan 19 j 13:47	10° $\mathring{A}$ 11'26		max. Earth dist.	-723 Mar 24 j 15:21	30° $\mathring{R}$ $\mathring{A}$	
opposition	-731 Apr 06 j 16:52	8° $\mathring{A}$ 48'01	16°16'01	conjunction	-723 Apr 27 j 20:25	29° $\mathring{A}$ 08'07	12°45'01
min. Earth dist.	-731 Apr 07 j 10:01	8° $\mathring{A}$ 46'49	28.65567 AU	minimum elong	-723 Apr 27 j 10:53	29° $\mathring{A}$ 08'46	29.04749 AU
direct	-731 Jun 25 j 15:10	7° $\mathring{A}$ 22'08		direct	-723 Jul 16 j 17:33	27° $\mathring{A}$ 44'19	
conjunction	-731 Oct 10 j 16:02	10° $\mathring{A}$ 06'40	15°03'31	conjunction	-723 Oct 21 j 06:51	0° $\mathring{M}$	
minimum elong	-731 Oct 10 j 16:21	10° $\mathring{A}$ 06'42	15°03'31	minimum elong	-723 Oct 30 j 13:41	0° $\mathring{M}$ 21'52	11°40'49
max. Earth dist.	-731 Oct 10 j 00:04	10° $\mathring{A}$ 05'03	30.58468 AU	max. Earth dist.	-723 Oct 30 j 14:06	0° $\mathring{M}$ 21'54	11°40'49
retrograde	-730 Jan 22 j 10:19	12° $\mathring{A}$ 47'23		retrograde	-723 Oct 31 j 01:44	0° $\mathring{M}$ 23'03	31.05122 AU
opposition	-730 Apr 09 j 15:30	11° $\mathring{A}$ 23'59	15°55'31	opposition	-722 Feb 11 j 07:03	2° $\mathring{M}$ 57'14	
					-722 Apr 30 j 15:45	1° $\mathring{M}$ 35'10	12°12'21



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 12

Attention, astronomical year style is used: The year -722 in astronomical counting style is the year 723 BCE in historical counting style.

min. Earth dist.	-722 Apr 30 j 02:18	1°M36'04	29.14479 AU	opposition	-714 May 20 j 02:01	20°M08'54	7°22'57
direct	-722 Jul 19 j 14:51	0°M11'43		direct	-714 Aug 08 j 06:55	18°M48'26	
conjunction	-722 Nov 02 j 05:01	2°M48'05	11°09'52	conjunction	-714 Nov 20 j 05:31	21°M14'07	6°37'41
minimum elong	-722 Nov 02 j 05:25	2°M48'07	11°09'51	minimum elong	-714 Nov 20 j 05:46	21°M14'08	6°37'40
max. Earth dist.	-722 Nov 02 j 20:04	2°M49'33	31.15684 AU	max. Earth dist.	-714 Nov 21 j 19:11	21°M17'36	32.31600 AU
retrograde	-721 Feb 13 j 22:22	5°M22'30		retrograde	-713 Mar 03 j 19:41	23°M39'37	
opposition	-721 May 03 j 10:36	4°M00'40	11°38'39	min. Earth dist.	-713 May 20 j 23:00	22°M22'34	30.41904 AU
min. Earth dist.	-721 May 02 j 19:02	4°M01'43	29.25105 AU	opposition	-713 May 22 j 14:49	22°M19'59	6°44'46
direct	-721 Jul 22 j 09:27	2°M37'34		direct	-713 Aug 10 j 19:33	20°M59'57	
conjunction	-721 Nov 04 j 19:47	5°M12'42	10°38'01	conjunction	-713 Nov 22 j 14:18	23°M24'17	6°01'56
minimum elong	-721 Nov 04 j 20:11	5°M12'44	10°38'01	minimum elong	-713 Nov 22 j 14:33	23°M24'18	6°01'55
max. Earth dist.	-721 Nov 05 j 13:53	5°M14'27	31.27128 AU	max. Earth dist.	-713 Nov 24 j 06:59	23°M28'01	32.49987 AU
retrograde	-720 Feb 16 j 13:03	7°M46'05		retrograde	-712 Mar 05 j 04:47	25°M48'40	
min. Earth dist.	-720 May 04 j 09:43	6°M25'46	29.36587 AU	min. Earth dist.	-712 May 22 j 09:33	24°M32'02	30.60432 AU
opposition	-720 May 05 j 04:47	6°M24'29	11°04'02	opposition	-712 May 24 j 03:05	24°M29'22	6°06'28
direct	-720 Jul 24 j 05:57	5°M01'44		direct	-712 Aug 12 j 06:13	23°M09'47	
conjunction	-720 Nov 06 j 09:38	7°M35'35	10°05'22	conjunction	-712 Nov 23 j 22:21	25°M32'46	5°26'05
minimum elong	-720 Nov 06 j 10:01	7°M35'37	10°05'22	minimum elong	-712 Nov 23 j 22:34	25°M32'47	5°26'05
max. Earth dist.	-720 Nov 07 j 06:01	7°M37'33	31.39408 AU	max. Earth dist.	-712 Nov 25 j 17:27	25°M36'41	32.69101 AU
retrograde	-719 Feb 18 j 04:03	10°M07'55		retrograde	-711 Mar 07 j 13:37	27°M55'59	
opposition	-719 May 07 j 22:17	8°M46'32	10°28'38	min. Earth dist.	-711 May 24 j 18:01	26°M39'53	30.79646 AU
min. Earth dist.	-719 May 07 j 00:34	8°M48'00	29.48931 AU	opposition	-711 May 26 j 14:27	26°M37'03	5°28'08
direct	-719 Jul 27 j 00:02	7°M24'08		direct	-711 Aug 14 j 20:04	25°M17'55	
conjunction	-719 Nov 08 j 22:58	9°M56'39	9°32'00	conjunction	-711 Nov 26 j 05:47	27°M39'33	4°50'14
minimum elong	-719 Nov 08 j 23:20	9°M56'42	9°32'00	minimum elong	-711 Nov 26 j 05:59	27°M39'34	4°50'13
max. Earth dist.	-719 Nov 09 j 22:54	9°M58'57	31.52540 AU	max. Earth dist.	-711 Nov 28 j 02:37	27°M43'36	32.88828 AU
retrograde	-718 Feb 20 j 15:37	12°M27'52		retrograde	-710 Feb 27 j 18:37	0°M	
opposition	-718 May 10 j 14:49	11°M06'45	9°52'31	retrograde	-710 Mar 09 j 23:15	0°M01'36	
min. Earth dist.	-718 May 09 j 14:26	11°M08'22	29.62129 AU	min. Earth dist.	-710 Mar 20 j 01:29	30°M	
direct	-718 Jul 29 j 18:57	9°M44'41		opposition	-710 May 27 j 02:40	28°M45'58	30.99480 AU
conjunction	-718 Nov 11 j 11:21	12°M15'51	8°58'02	opposition	-710 May 29 j 01:04	28°M43'01	4°49'51
minimum elong	-718 Nov 11 j 11:41	12°M15'53	8°58'01	direct	-710 Aug 17 j 06:53	27°M24'19	
max. Earth dist.	-718 Nov 12 j 13:15	12°M18'19	31.66534 AU	conjunction	-710 Nov 28 j 12:41	29°M44'37	4°14'26
retrograde	-717 Feb 23 j 03:47	14°M45'56		minimum elong	-710 Nov 28 j 12:51	29°M44'38	4°14'26
min. Earth dist.	-717 May 12 j 02:55	13°M26'54	29.76243 AU	max. Earth dist.	-710 Nov 30 j 12:09	29°M48'52	33.09114 AU
opposition	-717 May 13 j 06:47	13°M25'03	9°15'48	retrograde	-710 Dec 05 j 16:35	0°M	
direct	-717 Aug 01 j 10:54	12°M03'22		retrograde	-709 Mar 12 j 04:44	2°M05'31	
conjunction	-717 Nov 13 j 23:00	14°M33'09	8°23'31	min. Earth dist.	-709 May 29 j 11:00	0°M50'18	31.19839 AU
minimum elong	-717 Nov 13 j 23:20	14°M33'11	8°23'30	opposition	-709 May 31 j 11:06	0°M47'16	4°11'42
max. Earth dist.	-717 Nov 15 j 05:01	14°M36'00	31.81435 AU	direct	-709 Jul 03 j 19:26	30°M	
retrograde	-717 Nov 25 j 20:13	15°M		direct	-709 Aug 19 j 18:45	29°M29'00	
retrograde	-716 Feb 25 j 13:14	17°M02'06		direct	-709 Oct 03 j 18:37	0°M	
opposition	-716 May 14 j 22:04	15°M41'29	8°38'34	conjunction	-709 Nov 30 j 18:40	1°M47'56	3°38'46
min. Earth dist.	-716 May 13 j 15:51	15°M43'29	29.91283 AU	minimum elong	-709 Nov 30 j 18:49	1°M47'57	3°38'46
direct	-716 Jun 11 j 09:26	15°M		max. Earth dist.	-709 Dec 02 j 19:04	1°M52'14	33.29872 AU
direct	-716 Aug 03 j 03:09	14°M20'11		retrograde	-708 Mar 13 j 10:58	4°M07'40	
direct	-716 Sep 22 j 06:06	15°M		min. Earth dist.	-708 May 30 j 17:48	2°M52'55	31.40683 AU
conjunction	-716 Nov 15 j 09:53	16°M48'35	7°48'34	opposition	-708 Jun 01 j 20:27	2°M49'44	3°33'45
minimum elong	-716 Nov 15 j 10:11	16°M48'37	7°48'34	direct	-708 Aug 21 j 04:43	1°M31'52	
max. Earth dist.	-716 Nov 16 j 17:49	16°M51'35	31.97262 AU	conjunction	-708 Dec 02 j 00:17	3°M49'28	3°03'18
retrograde	-715 Feb 27 j 00:50	19°M16'23		minimum elong	-708 Dec 02 j 00:24	3°M49'28	3°03'18
min. Earth dist.	-715 May 16 j 02:04	17°M58'20	30.07272 AU	max. Earth dist.	-708 Dec 04 j 03:28	3°M53'59	33.51062 AU
opposition	-715 May 17 j 12:19	17°M56'05	8°00'55	retrograde	-707 Mar 15 j 14:09	6°M08'00	
direct	-715 Aug 05 j 17:07	16°M35'11		min. Earth dist.	-707 Jun 02 j 01:23	4°M53'37	31.61957 AU
conjunction	-715 Nov 17 j 20:08	19°M02'13	7°13'15	opposition	-707 Jun 04 j 04:53	4°M50'23	2°56'03
minimum elong	-715 Nov 17 j 20:25	19°M02'15	7°13'15	direct	-707 Aug 23 j 15:24	3°M32'55	
max. Earth dist.	-715 Nov 19 j 07:48	19°M05'33	32.13998 AU	conjunction	-707 Dec 04 j 04:59	5°M49'09	2°28'03
retrograde	-714 Mar 01 j 09:25	21°M28'53		minimum elong	-707 Dec 04 j 05:05	5°M49'09	2°28'03
min. Earth dist.	-714 May 18 j 13:56	20°M11'15	30.24164 AU	max. Earth dist.	-707 Dec 06 j 08:51	5°M53'41	33.72660 AU



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 13

Attention, astronomical year style is used: The year -706 in astronomical counting style is the year 707 BCE in historical counting style.

retrograde	-706 Mar 17 j 18:55	8°♂06'31		retrograde	-698 Apr 01 j 07:03	22°♂54'03	
min. Earth dist.	-706 Jun 04 j 06:10	6°♂52'35	31.83663 AU	min. Earth dist.	-698 Jun 19 j 06:24	21°♂43'21	33.73857 AU
opposition	-706 Jun 06 j 12:33	6°♂49'12	2°18'40	opposition	-698 Jun 22 j 01:00	21°♂39'23	-2°-24'-3
direct	-706 Aug 25 j 23:36	5°♂32'05		direct	-698 Sep 10 j 15:03	20°♂25'29	
conjunction	-706 Dec 06 j 08:56	7°♂46'59	1°53'06	conjunction	-698 Dec 20 j 18:28	22°♂30'49	-2°-31'-25
minimum elong	-706 Dec 06 j 09:01	7°♂46'59	1°53'06	minimum elong	-698 Dec 20 j 18:23	22°♂30'49	2°31'27
max. Earth dist.	-706 Dec 08 j 15:24	7°♂51'42	33.94667 AU	max. Earth dist.	-698 Dec 23 j 12:59	22°♂36'15	35.86337 AU
retrograde	-705 Mar 19 j 21:01	10°♂03'11		retrograde	-697 Apr 03 j 06:41	24°♂38'37	
min. Earth dist.	-705 Jun 06 j 12:26	8°♂49'34	32.05826 AU	min. Earth dist.	-697 Jun 21 j 06:14	23°♂28'22	33.99069 AU
opposition	-705 Jun 08 j 19:38	8°♂46'09	1°41'38	opposition	-697 Jun 24 j 02:42	23°♂24'18	-2°-56'-50
direct	-705 Aug 28 j 06:56	7°♂29'25		direct	-697 Sep 12 j 16:13	22°♂10'48	
conjunction	-705 Dec 08 j 12:16	9°♂42'59	1°18'29	conjunction	-697 Dec 22 j 17:17	24°♂15'04	-3°-2'-9
minimum elong	-705 Dec 08 j 12:19	9°♂42'59	1°18'28	minimum elong	-697 Dec 22 j 17:11	24°♂15'03	3°02'10
max. Earth dist.	-705 Dec 10 j 20:07	9°♂47'47	34.17139 AU	max. Earth dist.	-697 Dec 25 j 12:46	24°♂20'31	36.11501 AU
retrograde	-704 Mar 21 j 00:30	11°♂58'02		retrograde	-696 Apr 04 j 06:41	26°♂21'54	
min. Earth dist.	-704 Jun 07 j 15:51	10°♂44'52	32.28484 AU	min. Earth dist.	-696 Jun 22 j 07:17	25°♂11'58	34.24376 AU
opposition	-704 Jun 10 j 01:48	10°♂41'18	1°05'00	opposition	-696 Jun 25 j 03:56	25°♂07'56	-3°-28'-59
direct	-704 Aug 29 j 13:07	9°♂24'55		direct	-696 Sep 13 j 16:24	23°♂54'48	
conjunction	-704 Dec 09 j 14:50	11°♂37'12	0°44'15	conjunction	-696 Dec 23 j 15:43	25°♂58'00	-3°-32'-18
minimum elong	-704 Dec 09 j 14:51	11°♂37'13	0°44'14	minimum elong	-696 Dec 23 j 15:36	25°♂58'00	3°32'20
max. Earth dist.	-704 Dec 12 j 00:41	11°♂42'09	34.40085 AU	max. Earth dist.	-696 Dec 26 j 12:15	26°♂03'30	36.36717 AU
retrograde	-703 Mar 23 j 03:55	13°♂51'09		retrograde	-695 Apr 06 j 06:01	28°♂03'53	
min. Earth dist.	-703 Jun 09 j 19:59	12°♂38'21	32.51659 AU	min. Earth dist.	-695 Jun 24 j 07:00	26°♂54'17	34.49700 AU
opposition	-703 Jun 12 j 07:23	12°♂34'43	0°28'50	opposition	-695 Jun 27 j 04:27	26°♂50'13	-4°00'-30
direct	-703 Aug 31 j 17:16	11°♂18'44		direct	-695 Sep 15 j 17:24	25°♂37'26	
conjunction	-703 Dec 11 j 16:57	13°♂29'46	0°10'27	conjunction	-695 Dec 25 j 13:27	27°♂39'36	-4°-1'-52
minimum elong	-703 Dec 11 j 16:57	13°♂29'46	0°10'26	minimum elong	-695 Dec 25 j 13:19	27°♂39'35	4°01'53
behind sun begin	-703 Dec 11 j 11:55	13°♂29'22		max. Earth dist.	-695 Dec 28 j 09:53	27°♂45'03	36.61926 AU
behind sun end	-703 Dec 11 j 22:00	13°♂30'11		retrograde	-694 Apr 08 j 05:41	29°♂44'31	
max. Earth dist.	-703 Dec 14 j 04:58	13°♂34'51	34.63526 AU	min. Earth dist.	-694 Jun 26 j 05:49	28°♂35'15	34.75051 AU
retrograde	-702 Mar 25 j 05:33	15°♂42'36		opposition	-694 Jun 29 j 04:22	28°♂31'08	-4°-31'-21
desc. node	-702 Apr 04 j 13:10	15°♂41'03		direct	-694 Sep 17 j 16:23	27°♂18'42	
min. Earth dist.	-702 Jun 11 j 22:42	14°♂30'15	32.75317 AU	conjunction	-694 Dec 27 j 10:48	29°♂19'49	-4°-30'-49
opposition	-702 Jun 14 j 12:02	14°♂26'31	0°-6'-50	minimum elong	-694 Dec 27 j 10:40	29°♂19'48	4°30'52
direct	-702 Sep 03 j 00:06	13°♂10'56		max. Earth dist.	-694 Dec 30 j 08:58	29°♂25'21	36.87160 AU
conjunction	-702 Dec 13 j 18:18	15°♂20'46	0°-22'-59		-693 Jan 18 j 00:30	0°♂	
minimum elong	-702 Dec 13 j 18:17	15°♂20'46	0°23'00	retrograde	-693 Apr 10 j 00:40	1°♂23'47	
max. Earth dist.	-702 Dec 16 j 07:15	15°♂25'53	34.87420 AU	min. Earth dist.	-693 Jun 28 j 05:19	0°♂14'46	35.00442 AU
retrograde	-701 Mar 27 j 08:39	17°♂32'33		opposition	-693 Jul 01 j 03:50	0°♂10'41	-5°-1'-31
min. Earth dist.	-701 Jun 14 j 00:48	16°♂20'38	32.99445 AU		-693 Jul 08 j 20:22	30°♂♂	
opposition	-701 Jun 16 j 16:16	16°♂16'48	0°-42'00	direct	-693 Sep 19 j 18:05	28°♂58'33	
direct	-701 Sep 05 j 04:12	15°♂01'38			-693 Nov 26 j 19:11	0°♂	
conjunction	-701 Dec 15 j 19:08	17°♂10'19	0°-55'-52	conjunction	-693 Dec 29 j 07:23	0°♂58'38	-4°-59'-10
minimum elong	-701 Dec 15 j 19:06	17°♂10'19	0°55'54	minimum elong	-693 Dec 29 j 07:13	0°♂58'38	4°59'11
max. Earth dist.	-701 Dec 18 j 10:42	17°♂15'36	35.11728 AU	max. Earth dist.	-692 Jan 01 j 05:23	1°♂04'08	37.12449 AU
retrograde	-700 Mar 28 j 08:30	19°♂21'03		retrograde	-692 Apr 10 j 20:06	3°♂01'40	
min. Earth dist.	-700 Jun 15 j 03:41	18°♂09'32	33.23957 AU	min. Earth dist.	-692 Jun 29 j 02:17	1°♂53'01	35.25931 AU
opposition	-700 Jun 17 j 19:53	18°♂05'40	-1°-16'-36	opposition	-692 Jul 02 j 02:38	1°♂48'50	-5°-31'-1
direct	-700 Sep 06 j 09:17	16°♂50'56		direct	-692 Sep 20 j 18:44	0°♂37'01	
conjunction	-700 Dec 16 j 19:24	18°♂58'28	-1°-28'-15	conjunction	-692 Dec 30 j 03:40	2°♂36'07	-5°-26'-52
minimum elong	-700 Dec 16 j 19:21	18°♂58'28	1°28'17	minimum elong	-692 Dec 30 j 03:30	2°♂36'06	5°26'54
max. Earth dist.	-700 Dec 19 j 11:23	19°♂03'45	35.36371 AU	max. Earth dist.	-691 Jan 02 j 03:29	2°♂41'43	37.37834 AU
retrograde	-699 Mar 30 j 08:29	21°♂08'12		retrograde	-691 Apr 12 j 14:39	4°♂38'14	
min. Earth dist.	-699 Jun 17 j 04:06	19°♂57'10	33.48792 AU	min. Earth dist.	-691 Jul 01 j 00:39	3°♂29'50	35.51547 AU
opposition	-699 Jun 19 j 22:37	19°♂53'11	-1°-50'-38	opposition	-691 Jul 04 j 00:49	3°♂25'40	-5°-59'-49
direct	-699 Sep 08 j 12:18	18°♂38'52		direct	-691 Sep 22 j 18:12	2°♂14'11	
conjunction	-699 Dec 18 j 19:15	20°♂45'17	-2°00'-7	conjunction	-691 Dec 31 j 23:27	4°♂12'18	-5°-53'-57
minimum elong	-699 Dec 18 j 19:11	20°♂45'17	2°00'08	minimum elong	-691 Dec 31 j 23:16	4°♂12'17	5°53'57
max. Earth dist.	-699 Dec 21 j 13:22	20°♂50'43	35.61265 AU	max. Earth dist.	-690 Jan 03 j 23:39	4°♂17'53	37.63356 AU



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 14

Attention, astronomical year style is used: The year -690 in astronomical counting style is the year 691 BCE in historical counting style.

retrograde	-690 Apr 14 j 09:55	6°♄13'33		direct	-682 Oct 07 j 03:29	15°♄59'14	
min. Earth dist.	-690 Jul 02 j 20:30	5°♄05'30	35.77298 AU				
opposition	-690 Jul 05 j 22:26	5°♄01'16	-6°-27'-55	conjunction	-681 Jan 14 j 15:21	17°♄49'48	-9°-29'-2
direct	-690 Sep 24 j 16:15	3°♄50'05		minimum elong	-681 Jan 14 j 15:07	17°♄49'47	9°29'04
				max. Earth dist.	-681 Jan 17 j 19:17	17°♄55'19	39.92900 AU
conjunction	-689 Jan 02 j 18:33	5°♄47'16	-6°-20'-22	retrograde	-681 Apr 28 j 05:08	19°♄44'04	
minimum elong	-689 Jan 02 j 18:23	5°♄47'15	6°20'24	min. Earth dist.	-681 Jul 17 j 01:50	18°♄38'25	38.08207 AU
max. Earth dist.	-689 Jan 05 j 19:37	5°♄52'53	37.88994 AU	opposition	-681 Jul 20 j 05:15	18°♄34'16	-10°-10'00
retrograde	-689 Apr 16 j 06:53	7°♄47'41		direct	-681 Oct 08 j 21:43	17°♄25'50	
min. Earth dist.	-689 Jul 04 j 17:27	6°♄39'55	36.03182 AU				
opposition	-689 Jul 07 j 19:48	6°♄35'41	-6°-55'-20	conjunction	-680 Jan 16 j 07:13	19°♄15'37	-9°-49'-52
direct	-689 Sep 26 j 11:48	5°♄24'50		minimum elong	-680 Jan 16 j 07:00	19°♄15'36	9°49'53
				max. Earth dist.	-680 Jan 19 j 10:18	19°♄21'03	40.17575 AU
conjunction	-688 Jan 04 j 13:31	7°♄21'07	-6°-46'-10	retrograde	-680 Apr 28 j 21:07	21°♄09'09	
minimum elong	-688 Jan 04 j 13:19	7°♄21'06	6°46'10	min. Earth dist.	-680 Jul 17 j 18:02	20°♄03'46	38.33032 AU
max. Earth dist.	-688 Jan 07 j 15:52	7°♄26'47	38.14748 AU	opposition	-680 Jul 20 j 22:23	19°♄59'35	-10°-31'-23
retrograde	-688 Apr 17 j 02:43	9°♄20'41		direct	-680 Oct 09 j 14:52	18°♄51'23	
min. Earth dist.	-688 Jul 05 j 13:32	8°♄13'14	36.29145 AU				
opposition	-688 Jul 08 j 16:26	8°♄09'00	-7°-22'-2	conjunction	-679 Jan 16 j 22:46	20°♄40'27	-10°-10'-5
direct	-688 Sep 27 j 07:47	6°♄58'29		minimum elong	-679 Jan 16 j 22:32	20°♄40'26	10°10'06
				max. Earth dist.	-679 Jan 20 j 03:04	20°♄45'56	40.42116 AU
conjunction	-687 Jan 05 j 07:53	8°♄53'53	-7°-11'-18	retrograde	-679 Apr 30 j 09:59	22°♄33'17	
minimum elong	-687 Jan 05 j 07:42	8°♄53'52	7°11'20	min. Earth dist.	-679 Jul 19 j 11:40	21°♄28'04	38.57745 AU
max. Earth dist.	-687 Jan 08 j 10:03	8°♄59'30	38.40545 AU	opposition	-679 Jul 22 j 15:12	21°♄23'56	-10°-52'-6
retrograde	-687 Apr 18 j 22:47	10°♄52'40		direct	-679 Oct 11 j 10:20	20°♄16'00	
min. Earth dist.	-687 Jul 07 j 08:43	9°♄45'33	36.55144 AU				
opposition	-687 Jul 10 j 12:43	9°♄41'16	-7°-48'-2	conjunction	-678 Jan 18 j 13:54	22°♄04'20	-10°-29'-41
direct	-687 Sep 29 j 02:48	8°♄31'05		minimum elong	-678 Jan 18 j 13:42	22°♄04'19	10°29'43
				max. Earth dist.	-678 Jan 21 j 17:48	22°♄09'46	40.66575 AU
conjunction	-686 Jan 07 j 02:01	10°♄25'39	-7°-35'-48	retrograde	-678 May 01 j 23:53	23°♄56'30	
minimum elong	-686 Jan 07 j 01:49	10°♄25'38	7°35'50	min. Earth dist.	-678 Jul 21 j 02:45	22°♄51'34	38.82384 AU
max. Earth dist.	-686 Jan 10 j 05:42	10°♄31'20	38.66329 AU	opposition	-678 Jul 24 j 07:28	22°♄47'23	-11°-12'-11
retrograde	-686 Apr 20 j 15:02	12°♄23'38		direct	-678 Oct 13 j 03:47	21°♄39'42	
min. Earth dist.	-686 Jul 09 j 05:06	11°♄16'46	36.81092 AU				
opposition	-686 Jul 12 j 08:31	11°♄12'32	-8°-13'-21	conjunction	-677 Jan 20 j 04:41	23°♄27'21	-10°-48'-41
direct	-686 Oct 01 j 00:51	10°♄02'41		minimum elong	-677 Jan 20 j 04:28	23°♄27'20	10°48'42
				max. Earth dist.	-677 Jan 23 j 09:00	23°♄32'46	40.90968 AU
conjunction	-685 Jan 08 j 19:46	11°♄56'25	-7°-59'-41	retrograde	-677 May 03 j 15:31	25°♄18'53	
minimum elong	-685 Jan 08 j 19:33	11°♄56'24	7°59'43	min. Earth dist.	-677 Jul 22 j 19:18	24°♄14'09	39.06975 AU
max. Earth dist.	-685 Jan 11 j 22:45	12°♄02'02	38.92038 AU	opposition	-677 Jul 25 j 23:36	24°♄10'01	-11°-31'-36
retrograde	-685 Apr 22 j 08:27	13°♄53'39		direct	-677 Oct 14 j 19:17	23°♄02'35	
min. Earth dist.	-685 Jul 10 j 23:20	12°♄47'08	37.06939 AU				
opposition	-685 Jul 14 j 03:55	12°♄42'51	-8°-38'00	conjunction	-676 Jan 21 j 19:14	24°♄49'34	-11°-7'-4
direct	-685 Oct 02 j 21:05	11°♄33'19		minimum elong	-676 Jan 21 j 19:03	24°♄49'33	11°07'06
				max. Earth dist.	-676 Jan 25 j 00:20	24°♄55'01	41.15309 AU
conjunction	-684 Jan 10 j 13:09	13°♄26'14	-8°-22'-56	retrograde	-676 May 04 j 07:04	26°♄40'28	
minimum elong	-684 Jan 10 j 12:56	13°♄26'13	8°22'57	min. Earth dist.	-676 Jul 23 j 10:39	25°♄35'59	39.31475 AU
max. Earth dist.	-684 Jan 13 j 16:55	13°♄31'52	39.17589 AU	opposition	-676 Jul 26 j 15:14	25°♄31'52	-11°-50'-23
retrograde	-684 Apr 23 j 01:17	15°♄22'43		direct	-676 Oct 15 j 10:18	24°♄24'42	
min. Earth dist.	-684 Jul 11 j 19:24	14°♄16'24	37.32608 AU				
opposition	-684 Jul 14 j 23:01	14°♄12'12	-9°-1'-59	conjunction	-675 Jan 22 j 09:27	26°♄11'03	-11°-24'-53
direct	-684 Oct 03 j 16:41	13°♄02'58		minimum elong	-675 Jan 22 j 09:14	26°♄11'02	11°24'54
				max. Earth dist.	-675 Jan 25 j 13:44	26°♄16'24	41.39544 AU
conjunction	-683 Jan 11 j 06:23	14°♄55'05	-8°-45'-34	retrograde	-675 May 06 j 00:36	28°♄01'20	
minimum elong	-683 Jan 11 j 06:10	14°♄55'04	8°45'36	min. Earth dist.	-675 Jul 25 j 01:27	26°♄57'07	39.55868 AU
max. Earth dist.	-683 Jan 14 j 10:00	15°♄00'40	39.42938 AU	opposition	-675 Jul 28 j 06:26	26°♄52'59	-12°-8'-33
retrograde	-683 Apr 24 j 18:02	16°♄50'49		direct	-675 Oct 16 j 22:16	25°♄46'06	
min. Earth dist.	-683 Jul 13 j 13:16	15°♄44'47	37.58038 AU				
opposition	-683 Jul 16 j 17:22	15°♄40'34	-9°-25'-18	conjunction	-674 Jan 23 j 23:29	27°♄31'50	-11°-42'-6
direct	-683 Oct 05 j 11:36	14°♄31'36		minimum elong	-674 Jan 23 j 23:17	27°♄31'49	11°42'08
				max. Earth dist.	-674 Jan 27 j 04:49	27°♄37'14	41.63643 AU
conjunction	-682 Jan 12 j 23:04	16°♄22'57	-9°-7'-36	retrograde	-674 May 07 j 13:54	29°♄21'32	
minimum elong	-682 Jan 12 j 22:52	16°♄22'56	9°07'37	min. Earth dist.	-674 Jul 26 j 17:32	28°♄17'30	39.80082 AU
max. Earth dist.	-682 Jan 16 j 02:08	16°♄28'27	39.68032 AU	opposition	-674 Jul 29 j 21:29	28°♄13'27	-12°-26'-7
retrograde	-682 Apr 26 j 13:15	18°♄17'57		direct	-674 Oct 18 j 13:51	27°♄06'50	
min. Earth dist.	-682 Jul 15 j 07:38	17°♄12'07	37.83235 AU				
opposition	-682 Jul 18 j 11:34	17°♄07'56	-9°-47'-58	conjunction	-673 Jan 25 j 13:04	28°♄51'57	-11°-58'-45



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 15

Attention, astronomical year style is used: The year -673 in astronomical counting style is the year 674 BCE in historical counting style.

minimum elong	-673 Jan 25 j 12:51	28° $\overline{51}$ '56	11°58'46	conjunction	-665 Feb 04 j 17:46	9° $\approx$ 07'02	-13°-53'-10
max. Earth dist.	-673 Jan 28 j 17:23	28° $\overline{57}$ '15	41.87545 AU	minimum elong	-665 Feb 04 j 17:37	9° $\approx$ 07'01	13°53'11
	-673 Mar 10 j 15:42	0° $\approx$		max. Earth dist.	-665 Feb 07 j 19:24	9° $\approx$ 11'56	43.67475 AU
retrograde	-673 May 09 j 01:59	0° $\approx$ 41'05		retrograde	-665 May 19 j 04:37	10° $\approx$ 51'42	
	-673 Jul 09 j 23:42	30° $\overline{R}$ $\overline{5}$		min. Earth dist.	-665 Aug 07 j 21:58	9° $\approx$ 49'11	41.84432 AU
min. Earth dist.	-673 Jul 28 j 07:31	29° $\overline{53}$ '19	40.04069 AU	opposition	-665 Aug 10 j 22:35	9° $\approx$ 45'25	-14°-39'-4
opposition	-673 Jul 31 j 12:11	29° $\overline{53}$ '14	-12°-43'-5	direct	-665 Oct 30 j 19:24	8° $\approx$ 40'41	
direct	-673 Oct 20 j 06:00	28° $\overline{52}$ '53					
	-672 Jan 20 j 05:17	0° $\approx$		conjunction	-664 Feb 06 j 05:18	10° $\approx$ 20'41	-14°-5'-10
				minimum elong	-664 Feb 06 j 05:08	10° $\approx$ 20'41	14°05'11
conjunction	-672 Jan 27 j 02:36	0° $\approx$ 11'25	-12°-14'-52	max. Earth dist.	-664 Feb 09 j 07:28	10° $\approx$ 25'36	43.88866 AU
minimum elong	-672 Jan 27 j 02:25	0° $\approx$ 11'24	12°14'54	retrograde	-664 May 19 j 15:48	12° $\approx$ 04'53	
max. Earth dist.	-672 Jan 30 j 07:12	0° $\approx$ 16'43	42.11172 AU	min. Earth dist.	-664 Aug 08 j 10:13	11° $\approx$ 02'32	42.05896 AU
retrograde	-672 May 09 j 14:08	1° $\approx$ 59'58		opposition	-664 Aug 11 j 10:23	10° $\approx$ 58'48	-14°-51'-9
min. Earth dist.	-672 Jul 28 j 23:22	0° $\approx$ 56'22	40.27756 AU	direct	-664 Oct 31 j 07:32	9° $\approx$ 54'17	
opposition	-672 Aug 01 j 02:35	0° $\approx$ 52'22	-12°-59'-28				
	-672 Sep 17 j 08:44	30° $\overline{R}$ $\overline{5}$		conjunction	-663 Feb 06 j 16:29	11° $\approx$ 33'49	-14°-16'-40
direct	-672 Oct 20 j 22:00	29° $\overline{54}$ '16		minimum elong	-663 Feb 06 j 16:21	11° $\approx$ 33'48	14°16'41
	-672 Nov 22 j 15:20	0° $\approx$		max. Earth dist.	-663 Feb 09 j 17:20	11° $\approx$ 38'37	44.10061 AU
				retrograde	-663 May 21 j 05:19	13° $\approx$ 17'32	
conjunction	-671 Jan 27 j 16:01	1° $\approx$ 30'12	-12°-30'-27	min. Earth dist.	-663 Aug 09 j 21:44	12° $\approx$ 15'24	42.27153 AU
minimum elong	-671 Jan 27 j 15:50	1° $\approx$ 30'11	12°30'28	opposition	-663 Aug 12 j 22:06	12° $\approx$ 11'40	-15°-2'-42
max. Earth dist.	-671 Jan 30 j 20:01	1° $\approx$ 35'26	42.34481 AU	direct	-663 Nov 01 j 16:43	11° $\approx$ 07'22	
retrograde	-671 May 11 j 02:42	3° $\approx$ 18'12					
min. Earth dist.	-671 Jul 30 j 13:23	2° $\approx$ 14'48	40.51076 AU	conjunction	-662 Feb 08 j 03:26	12° $\approx$ 46'27	-14°-27'-40
opposition	-671 Aug 02 j 16:36	2° $\approx$ 10'49	-13°-15'-19	minimum elong	-662 Feb 08 j 03:17	12° $\approx$ 46'27	14°27'42
direct	-671 Oct 22 j 13:10	1° $\approx$ 04'55		max. Earth dist.	-662 Feb 11 j 05:00	12° $\approx$ 51'17	44.31020 AU
				retrograde	-662 May 22 j 15:42	14° $\approx$ 29'44	
conjunction	-670 Jan 29 j 04:56	2° $\approx$ 48'16	-12°-45'-31	min. Earth dist.	-662 Aug 11 j 10:43	13° $\approx$ 27'44	42.48143 AU
minimum elong	-670 Jan 29 j 04:45	2° $\approx$ 48'15	12°45'33	opposition	-662 Aug 14 j 09:39	13° $\approx$ 24'05	-15°-13'-46
max. Earth dist.	-670 Feb 01 j 07:49	2° $\approx$ 53'23	42.57405 AU	direct	-662 Nov 03 j 04:40	12° $\approx$ 20'01	
retrograde	-670 May 12 j 17:38	4° $\approx$ 35'41					
min. Earth dist.	-670 Aug 01 j 03:57	3° $\approx$ 32'26	40.74024 AU	conjunction	-661 Feb 09 j 14:20	13° $\approx$ 58'40	-14°-38'-13
opposition	-670 Aug 04 j 06:29	3° $\approx$ 28'30	-13°-30'-38	minimum elong	-661 Feb 09 j 14:13	13° $\approx$ 58'39	14°38'15
direct	-670 Oct 24 j 01:34	2° $\approx$ 22'50		max. Earth dist.	-661 Feb 12 j 14:45	14° $\approx$ 03'24	44.51706 AU
					-661 Mar 23 j 11:50	15° $\approx$	
conjunction	-669 Jan 30 j 17:47	4° $\approx$ 05'34	-13°00'-4	retrograde	-661 May 24 j 01:26	15° $\approx$ 41'30	
minimum elong	-669 Jan 30 j 17:36	4° $\approx$ 05'34	13°00'05		-661 Jul 26 j 23:13	15° $\overline{R}$ $\approx$	
max. Earth dist.	-669 Feb 02 j 21:09	4° $\approx$ 10'42	42.79971 AU	min. Earth dist.	-661 Aug 12 j 21:35	14° $\approx$ 39'45	42.68820 AU
retrograde	-669 May 14 j 06:55	5° $\approx$ 52'25		opposition	-661 Aug 15 j 20:51	14° $\approx$ 36'05	-15°-24'-21
min. Earth dist.	-669 Aug 02 j 18:24	4° $\approx$ 49'16	40.96609 AU	direct	-661 Nov 04 j 16:21	13° $\approx$ 32'14	
opposition	-669 Aug 05 j 19:57	4° $\approx$ 45'25	-13°-45'-24		-660 Feb 04 j 08:16	15° $\approx$	
direct	-669 Oct 25 j 14:33	3° $\approx$ 39'55					
				conjunction	-660 Feb 11 j 01:02	15° $\approx$ 10'27	-14°-48'-19
conjunction	-668 Feb 01 j 06:09	5° $\approx$ 22'05	-13°-14'-7	minimum elong	-660 Feb 11 j 00:53	15° $\approx$ 10'27	14°48'20
minimum elong	-668 Feb 01 j 05:58	5° $\approx$ 22'04	13°14'09	max. Earth dist.	-660 Feb 14 j 00:45	15° $\approx$ 15'08	44.72035 AU
max. Earth dist.	-668 Feb 04 j 08:07	5° $\approx$ 27'05	43.02208 AU	retrograde	-660 May 24 j 11:45	16° $\approx$ 52'53	
retrograde	-668 May 14 j 20:50	7° $\approx$ 08'21		min. Earth dist.	-660 May 23 j 10:26	15° $\approx$ 51'14	42.89112 AU
min. Earth dist.	-668 Aug 03 j 07:04	6° $\approx$ 05'23	41.18898 AU	opposition	-660 Aug 16 j 08:01	15° $\approx$ 47'41	-15°-34'-29
opposition	-668 Aug 06 j 09:04	6° $\approx$ 01'31	-13°-59'-37		-660 Sep 29 j 02:28	15° $\overline{R}$ $\approx$	
direct	-668 Oct 26 j 02:20	4° $\approx$ 56'12		direct	-660 Nov 05 j 04:48	14° $\approx$ 44'02	
					-660 Dec 11 j 09:49	15° $\approx$	
conjunction	-667 Feb 01 j 18:22	6° $\approx$ 37'48	-13°-27'-39				
minimum elong	-667 Feb 01 j 18:12	6° $\approx$ 37'47	13°27'40	conjunction	-659 Feb 11 j 11:47	16° $\approx$ 21'50	-14°-57'-59
max. Earth dist.	-667 Feb 04 j 20:50	6° $\approx$ 42'48	43.24166 AU	minimum elong	-659 Feb 11 j 11:41	16° $\approx$ 21'49	14°58'00
retrograde	-667 May 16 j 06:04	8° $\approx$ 23'30		max. Earth dist.	-659 Feb 14 j 11:11	16° $\approx$ 26'28	44.91955 AU
min. Earth dist.	-667 Aug 04 j 21:12	7° $\approx$ 20'38	41.40936 AU	retrograde	-659 May 25 j 22:46	18° $\approx$ 03'50	
opposition	-667 Aug 07 j 21:47	7° $\approx$ 16'50	-14°-13'-19	min. Earth dist.	-659 Aug 14 j 21:52	17° $\approx$ 02'21	43.08946 AU
direct	-667 Oct 27 j 17:14	6° $\approx$ 11'43		opposition	-659 Aug 17 j 18:43	16° $\approx$ 58'50	-15°-44'-10
				direct	-659 Nov 06 j 15:57	15° $\approx$ 55'23	
conjunction	-666 Feb 03 j 06:18	7° $\approx$ 52'45	-13°-40'-40				
minimum elong	-666 Feb 03 j 06:08	7° $\approx$ 52'44	13°40'41	conjunction	-658 Feb 12 j 22:10	17° $\approx$ 32'45	-15°-7'-14
max. Earth dist.	-666 Feb 06 j 08:16	7° $\approx$ 57'43	43.45917 AU	minimum elong	-658 Feb 12 j 22:02	17° $\approx$ 32'45	15°07'15
retrograde	-666 May 17 j 15:43	9° $\approx$ 37'55		max. Earth dist.	-658 Feb 15 j 19:37	17° $\approx$ 37'14	45.11410 AU
min. Earth dist.	-666 Aug 06 j 09:01	8° $\approx$ 35'16	41.62771 AU	retrograde	-658 May 27 j 12:11	19° $\approx$ 14'20	
opposition	-666 Aug 09 j 10:14	8° $\approx$ 31'27	-14°-26'-27	min. Earth dist.	-658 Aug 16 j 09:10	18° $\approx$ 12'58	43.28319 AU
direct	-666 Oct 29 j 07:46	7° $\approx$ 26'31		opposition	-658 Aug 19 j 05:26	18° $\approx$ 09'30	-15°-53'-26



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 16

Attention, astronomical year style is used: The year -658 in astronomical counting style is the year 659 BCE in historical counting style.

direct	-658 Nov 07 j 23:36	17° $\approx$ 06'13		minimum elong	-649 Feb 23 j 10:41	27° $\approx$ 47'18	16°12'00
				max. Earth dist.	-649 Feb 26 j 03:14	27° $\approx$ 51'20	46.70433 AU
conjunction	-657 Feb 14 j 08:20	18° $\approx$ 43'10	-15°-16'-5	retrograde	-649 Jun 06 j 18:19	29° $\approx$ 25'19	
minimum elong	-657 Feb 14 j 08:14	18° $\approx$ 43'09	15°16'06	min. Earth dist.	-649 Aug 27 j 05:05	28° $\approx$ 24'55	44.86930 AU
max. Earth dist.	-657 Feb 17 j 05:56	18° $\approx$ 47'38	45.30403 AU	opposition	-649 Aug 29 j 18:47	28° $\approx$ 21'51	-16°-57'-32
retrograde	-657 May 28 j 21:40	20° $\approx$ 24'18		direct	-649 Nov 18 j 17:55	27° $\approx$ 19'54	
min. Earth dist.	-657 Aug 17 j 21:23	19° $\approx$ 23'00	43.47223 AU				
opposition	-657 Aug 20 j 15:53	19° $\approx$ 19'38	-16°-2'-16	conjunction	-648 Feb 24 j 19:26	28° $\approx$ 53'25	-16°-17'-10
direct	-657 Nov 09 j 10:36	18° $\approx$ 16'30		minimum elong	-648 Feb 24 j 19:24	28° $\approx$ 53'25	16°17'11
				max. Earth dist.	-648 Feb 27 j 10:17	28° $\approx$ 57'20	46.86561 AU
conjunction	-656 Feb 15 j 18:22	19° $\approx$ 53'01	-15°-24'-31		-648 Apr 14 j 00:48	0° $\approx$	
minimum elong	-656 Feb 15 j 18:15	19° $\approx$ 53'00	15°24'31	retrograde	-648 Jun 07 j 04:36	0° $\approx$ 31'06	
max. Earth dist.	-656 Feb 18 j 14:20	19° $\approx$ 57'22	45.48969 AU		-648 Aug 01 j 17:20	30° $\approx$	
retrograde	-656 May 29 j 05:54	21° $\approx$ 33'42		min. Earth dist.	-648 Aug 27 j 14:52	29° $\approx$ 30'48	45.02941 AU
min. Earth dist.	-656 Aug 18 j 07:15	20° $\approx$ 32'33	43.65726 AU	opposition	-648 Aug 30 j 03:17	29° $\approx$ 27'48	-17°-2'-36
opposition	-656 Aug 21 j 01:51	20° $\approx$ 29'11	-16°-10'-41	direct	-648 Nov 19 j 01:42	28° $\approx$ 26'00	
direct	-656 Nov 09 j 21:31	19° $\approx$ 26'11					
				conjunction	-647 Feb 25 j 04:09	29° $\approx$ 59'12	-16°-22'-1
conjunction	-655 Feb 16 j 04:07	21° $\approx$ 02'17	-15°-32'-32	minimum elong	-647 Feb 25 j 04:06	29° $\approx$ 59'12	16°22'02
minimum elong	-655 Feb 16 j 04:02	21° $\approx$ 02'16	15°32'34		-647 Feb 25 j 17:02	0° $\approx$	
max. Earth dist.	-655 Feb 18 j 23:45	21° $\approx$ 06'36	45.67152 AU	max. Earth dist.	-647 Feb 27 j 18:49	0° $\approx$ 03'05	47.02252 AU
retrograde	-655 May 30 j 13:37	22° $\approx$ 42'33		retrograde	-647 Jun 08 j 13:12	1° $\approx$ 36'33	
min. Earth dist.	-655 Aug 19 j 18:50	21° $\approx$ 41'26	43.83881 AU	min. Earth dist.	-647 Aug 29 j 00:47	0° $\approx$ 36'19	45.18466 AU
opposition	-655 Aug 22 j 11:49	21° $\approx$ 38'09	-16°-18'-40	opposition	-647 Aug 31 j 11:40	0° $\approx$ 33'24	-17°-7'-20
direct	-655 Nov 11 j 09:07	20° $\approx$ 35'18			-647 Sep 30 j 02:54	30° $\approx$	
				direct	-647 Nov 20 j 10:32	29° $\approx$ 31'45	
conjunction	-654 Feb 17 j 13:37	22° $\approx$ 10'58	-15°-40'-8		-646 Jan 09 j 08:05	0° $\approx$	
minimum elong	-654 Feb 17 j 13:31	22° $\approx$ 10'58	15°40'09	conjunction	-646 Feb 26 j 12:30	1° $\approx$ 04'38	-16°-26'-31
max. Earth dist.	-654 Feb 20 j 09:00	22° $\approx$ 15'15	45.85030 AU	minimum elong	-646 Feb 26 j 12:29	1° $\approx$ 04'38	16°26'33
retrograde	-654 May 31 j 21:21	23° $\approx$ 50'50		max. Earth dist.	-646 Mar 01 j 01:03	1° $\approx$ 08'21	47.17456 AU
min. Earth dist.	-654 Aug 21 j 04:23	22° $\approx$ 49'52	44.01732 AU	retrograde	-646 Jun 09 j 23:05	2° $\approx$ 41'38	
opposition	-654 Aug 23 j 21:26	22° $\approx$ 46'35	-16°-26'-12	min. Earth dist.	-646 Aug 30 j 09:27	1° $\approx$ 41'30	45.33495 AU
direct	-654 Nov 12 j 20:52	21° $\approx$ 43'52		opposition	-646 Sep 01 j 19:58	1° $\approx$ 38'37	-17°-11'-42
				direct	-646 Nov 21 j 16:46	0° $\approx$ 37'05	
conjunction	-653 Feb 18 j 22:54	23° $\approx$ 19'08	-15°-47'-19				
minimum elong	-653 Feb 18 j 22:49	23° $\approx$ 19'08	15°47'21	conjunction	-645 Feb 27 j 20:52	2° $\approx$ 09'39	-16°-30'-42
max. Earth dist.	-653 Feb 21 j 16:58	23° $\approx$ 23'19	46.02631 AU	minimum elong	-645 Feb 27 j 20:50	2° $\approx$ 09'39	16°30'43
retrograde	-653 Jun 02 j 08:55	24° $\approx$ 58'36		max. Earth dist.	-645 Mar 02 j 08:53	2° $\approx$ 13'20	47.32158 AU
min. Earth dist.	-653 Aug 22 j 14:29	23° $\approx$ 57'44	44.19335 AU	retrograde	-645 Jun 11 j 06:21	3° $\approx$ 46'20	
opposition	-653 Aug 25 j 06:56	23° $\approx$ 54'29	-16°-33'-18	min. Earth dist.	-645 Aug 31 j 19:43	2° $\approx$ 46'12	45.48032 AU
direct	-653 Nov 14 j 05:03	22° $\approx$ 51'55		opposition	-645 Sep 03 j 04:06	2° $\approx$ 43'25	-17°-15'-45
				direct	-645 Nov 23 j 01:24	1° $\approx$ 42'00	
conjunction	-652 Feb 20 j 08:10	24° $\approx$ 26'48	-15°-54'-5				
minimum elong	-652 Feb 20 j 08:06	24° $\approx$ 26'48	15°54'06	conjunction	-644 Feb 29 j 05:06	3° $\approx$ 14'15	-16°-34'-33
max. Earth dist.	-652 Feb 23 j 02:50	24° $\approx$ 31'00	46.19990 AU	minimum elong	-644 Feb 29 j 05:05	3° $\approx$ 14'15	16°34'35
retrograde	-652 Jun 02 j 19:22	26° $\approx$ 05'53		max. Earth dist.	-644 Mar 02 j 16:01	3° $\approx$ 17'51	47.46407 AU
min. Earth dist.	-652 Aug 23 j 00:51	25° $\approx$ 05'06	44.36670 AU	retrograde	-644 Jun 11 j 11:47	4° $\approx$ 50'35	
opposition	-652 Aug 25 j 16:12	25° $\approx$ 01'56	-16°-39'-59	min. Earth dist.	-644 Sep 01 j 03:39	3° $\approx$ 50'34	45.62121 AU
direct	-652 Nov 14 j 13:03	23° $\approx$ 59'30		opposition	-644 Sep 03 j 11:55	3° $\approx$ 47'48	-17°-19'-26
				direct	-644 Nov 23 j 11:27	2° $\approx$ 46'28	
conjunction	-651 Feb 20 j 17:11	25° $\approx$ 34'02	-16°00'-27				
minimum elong	-651 Feb 20 j 17:07	25° $\approx$ 34'02	16°00'28	conjunction	-643 Mar 01 j 13:00	4° $\approx$ 18'24	-16°-38'-3
max. Earth dist.	-651 Feb 23 j 10:20	25° $\approx$ 38'07	46.37093 AU	minimum elong	-643 Mar 01 j 12:59	4° $\approx$ 18'24	16°38'04
retrograde	-651 Jun 04 j 05:44	27° $\approx$ 12'44		max. Earth dist.	-643 Mar 03 j 22:23	4° $\approx$ 21'55	47.60233 AU
min. Earth dist.	-651 Aug 24 j 09:29	26° $\approx$ 12'07	44.53741 AU	retrograde	-643 Jun 12 j 19:40	5° $\approx$ 54'26	
opposition	-651 Aug 27 j 01:08	26° $\approx$ 08'56	-16°-46'-14	min. Earth dist.	-643 Sep 02 j 12:42	4° $\approx$ 54'27	45.75834 AU
direct	-651 Nov 15 j 20:03	25° $\approx$ 06'40		opposition	-643 Sep 04 j 19:34	4° $\approx$ 51'45	-17°-22'-47
				direct	-643 Nov 24 j 20:03	3° $\approx$ 50'32	
conjunction	-650 Feb 22 j 02:02	26° $\approx$ 40'51	-16°-6'-24				
minimum elong	-650 Feb 22 j 01:59	26° $\approx$ 40'51	16°06'25	conjunction	-642 Mar 02 j 20:52	5° $\approx$ 22'10	-16°-41'-13
max. Earth dist.	-650 Feb 24 j 19:02	26° $\approx$ 44'55	46.53916 AU	minimum elong	-642 Mar 02 j 20:52	5° $\approx$ 22'10	16°41'14
retrograde	-650 Jun 05 j 12:00	28° $\approx$ 19'12		max. Earth dist.	-642 Mar 05 j 06:35	5° $\approx$ 25'40	47.73722 AU
min. Earth dist.	-650 Aug 25 j 20:10	27° $\approx$ 18'39	44.70513 AU	retrograde	-642 Jun 14 j 04:07	6° $\approx$ 57'53	
opposition	-650 Aug 28 j 10:07	27° $\approx$ 15'34	-16°-52'-5	min. Earth dist.	-642 Sep 03 j 21:05	5° $\approx$ 57'57	45.89217 AU
direct	-650 Nov 17 j 06:52	26° $\approx$ 13'28		opposition	-642 Sep 06 j 03:04	5° $\approx$ 55'18	-17°-25'-46
				direct	-642 Nov 26 j 03:23	4° $\approx$ 54'11	
conjunction	-649 Feb 23 j 10:45	27° $\approx$ 47'18	-16°-11'-58				



# Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 17

Attention, astronomical year style is used: The year -641 in astronomical counting style is the year 642 BCE in historical counting style.

conjunction	-641 Mar 04 j 04:23	6° <del>1</del> 25'32	-16°-44'-1	retrograde	-633 Jun 23 j 19:22	16° <del>1</del> 16'58	
minimum elong	-641 Mar 04 j 04:23	6° <del>1</del> 25'32	16°44'01	min. Earth dist.	-633 Sep 13 j 19:54	15° <del>1</del> 17'41	46.94910 AU
max. Earth dist.	-641 Mar 06 j 12:22	6° <del>1</del> 28'56	47.86919 AU	opposition	-633 Sep 15 j 16:54	15° <del>1</del> 15'31	-17°-37'-10
retrograde	-641 Jun 15 j 14:31	8° <del>1</del> 00'57		direct	-633 Dec 05 j 17:27	14° <del>1</del> 15'25	
min. Earth dist.	-641 Sep 05 j 04:24	7° <del>1</del> 01'09	46.02327 AU				
opposition	-641 Sep 07 j 10:26	6° <del>1</del> 58'30	-17°-28'-22	conjunction	-632 Mar 12 j 21:19	15° <del>1</del> 44'41	-16°-54'-33
direct	-641 Nov 27 j 07:50	5° <del>1</del> 57'30		minimum elong	-632 Mar 12 j 21:22	15° <del>1</del> 44'41	16°54'33
				max. Earth dist.	-632 Mar 14 j 21:04	15° <del>1</del> 47'30	48.90653 AU
conjunction	-640 Mar 04 j 11:59	7° <del>1</del> 28'36	-16°-46'-29	retrograde	-632 Jun 24 j 00:22	17° <del>1</del> 17'50	
minimum elong	-640 Mar 04 j 11:59	7° <del>1</del> 28'36	16°46'30	min. Earth dist.	-632 Sep 14 j 03:03	16° <del>1</del> 18'35	47.04403 AU
max. Earth dist.	-640 Mar 06 j 19:58	7° <del>1</del> 31'58	47.99843 AU	opposition	-632 Sep 15 j 22:59	16° <del>1</del> 16'27	-17°-36'-56
retrograde	-640 Jun 15 j 20:18	9° <del>1</del> 03'44		direct	-632 Dec 06 j 02:17	15° <del>1</del> 16'25	
min. Earth dist.	-640 Sep 05 j 13:18	8° <del>1</del> 03'57	46.15162 AU				
opposition	-640 Sep 07 j 17:35	8° <del>1</del> 01'24	-17°-30'-38	conjunction	-631 Mar 14 j 04:01	16° <del>1</del> 45'27	-16°-54'-16
direct	-640 Nov 27 j 15:31	7° <del>1</del> 00'32		minimum elong	-631 Mar 14 j 04:06	16° <del>1</del> 45'27	16°54'17
				max. Earth dist.	-631 Mar 16 j 01:36	16° <del>1</del> 48'08	48.99941 AU
conjunction	-639 Mar 05 j 19:27	8° <del>1</del> 31'22	-16°-48'-35	retrograde	-631 Jun 25 j 09:23	18° <del>1</del> 18'21	
minimum elong	-639 Mar 05 j 19:29	8° <del>1</del> 31'22	16°48'35	min. Earth dist.	-631 Sep 15 j 09:48	17° <del>1</del> 19'07	47.13486 AU
max. Earth dist.	-639 Mar 08 j 02:38	8° <del>1</del> 34'42	48.12516 AU	opposition	-631 Sep 17 j 05:07	17° <del>1</del> 17'02	-17°-36'-24
retrograde	-639 Jun 17 j 00:39	10° <del>1</del> 06'14		direct	-631 Dec 07 j 06:30	16° <del>1</del> 17'03	
min. Earth dist.	-639 Sep 06 j 20:06	9° <del>1</del> 06'36	46.27724 AU				
opposition	-639 Sep 09 j 00:37	9° <del>1</del> 04'03	-17°-32'-31	conjunction	-630 Mar 15 j 10:32	17° <del>1</del> 45'51	-16°-53'-41
direct	-639 Nov 29 j 00:38	8° <del>1</del> 03'18		minimum elong	-630 Mar 15 j 10:35	17° <del>1</del> 45'51	16°53'42
				max. Earth dist.	-630 Mar 17 j 07:58	17° <del>1</del> 48'31	49.08838 AU
conjunction	-638 Mar 07 j 02:33	9° <del>1</del> 33'54	-16°-50'-21	retrograde	-630 Jun 26 j 15:54	19° <del>1</del> 18'31	
minimum elong	-638 Mar 07 j 02:34	9° <del>1</del> 33'54	16°50'23	min. Earth dist.	-630 Sep 16 j 17:38	18° <del>1</del> 19'16	47.22198 AU
max. Earth dist.	-638 Mar 09 j 08:33	9° <del>1</del> 37'09	48.24901 AU	opposition	-630 Sep 18 j 11:12	18° <del>1</del> 17'16	-17°-35'-34
retrograde	-638 Jun 18 j 07:52	11° <del>1</del> 08'31		direct	-630 Dec 08 j 12:18	17° <del>1</del> 17'21	
min. Earth dist.	-638 Sep 08 j 04:34	10° <del>1</del> 08'58	46.39993 AU				
opposition	-638 Sep 10 j 07:42	10° <del>1</del> 06'29	-17°-34'-4	conjunction	-629 Mar 16 j 17:06	18° <del>1</del> 45'57	-16°-52'-48
direct	-638 Nov 30 j 08:37	9° <del>1</del> 05'52		minimum elong	-629 Mar 16 j 17:11	18° <del>1</del> 45'57	16°52'50
				max. Earth dist.	-629 Mar 18 j 13:28	18° <del>1</del> 48'33	49.17411 AU
conjunction	-637 Mar 08 j 09:53	10° <del>1</del> 36'14	-16°-51'-47	retrograde	-629 Jun 27 j 20:44	20° <del>1</del> 18'22	
minimum elong	-637 Mar 08 j 09:56	10° <del>1</del> 36'14	16°51'48	min. Earth dist.	-629 Sep 17 j 23:21	19° <del>1</del> 19'12	47.30594 AU
max. Earth dist.	-637 Mar 10 j 15:57	10° <del>1</del> 39'29	48.36979 AU	opposition	-629 Sep 19 j 16:58	19° <del>1</del> 17'12	-17°-34'-25
retrograde	-637 Jun 19 j 14:41	12° <del>1</del> 10'38		direct	-629 Dec 09 j 18:32	18° <del>1</del> 17'21	
min. Earth dist.	-637 Sep 09 j 12:17	11° <del>1</del> 11'10	46.51906 AU				
opposition	-637 Sep 11 j 14:28	11° <del>1</del> 08'43	-17°-35'-17	conjunction	-628 Mar 16 j 23:32	19° <del>1</del> 45'45	-16°-51'-38
direct	-637 Dec 01 j 16:27	10° <del>1</del> 08'15		minimum elong	-628 Mar 16 j 23:37	19° <del>1</del> 45'46	16°51'38
				max. Earth dist.	-628 Mar 18 j 18:35	19° <del>1</del> 48'17	49.25672 AU
conjunction	-636 Mar 08 j 17:05	11° <del>1</del> 38'24	-16°-52'-55	retrograde	-628 Jun 28 j 01:46	21° <del>1</del> 17'58	
minimum elong	-636 Mar 08 j 17:06	11° <del>1</del> 38'24	16°52'56	min. Earth dist.	-628 Sep 18 j 06:48	20° <del>1</del> 18'49	47.38693 AU
max. Earth dist.	-636 Mar 10 j 21:02	11° <del>1</del> 41'30	48.48680 AU	opposition	-628 Sep 19 j 22:52	20° <del>1</del> 16'53	-17°-32'-57
retrograde	-636 Jun 20 j 01:11	13° <del>1</del> 12'33		direct	-628 Dec 10 j 01:29	19° <del>1</del> 17'07	
min. Earth dist.	-636 Sep 09 j 19:45	12° <del>1</del> 13'11	46.63412 AU				
opposition	-636 Sep 11 j 21:13	12° <del>1</del> 10'47	-17°-36'-11	conjunction	-627 Mar 18 j 05:56	20° <del>1</del> 45'21	-16°-50'-9
direct	-636 Dec 01 j 20:15	11° <del>1</del> 10'25		minimum elong	-627 Mar 18 j 06:02	20° <del>1</del> 45'21	16°50'11
				max. Earth dist.	-627 Mar 20 j 00:59	20° <del>1</del> 47'52	49.33648 AU
conjunction	-635 Mar 10 j 00:16	12° <del>1</del> 40'22	-16°-53'-44	retrograde	-627 Jun 29 j 06:20	22° <del>1</del> 17'23	
minimum elong	-635 Mar 10 j 00:20	12° <del>1</del> 40'22	16°53'45	min. Earth dist.	-627 Sep 19 j 12:58	21° <del>1</del> 18'18	47.46483 AU
max. Earth dist.	-635 Mar 12 j 03:48	12° <del>1</del> 43'26	48.59926 AU	opposition	-627 Sep 21 j 04:29	21° <del>1</del> 16'24	-17°-31'-12
retrograde	-635 Jun 21 j 09:22	14° <del>1</del> 14'16		direct	-627 Dec 11 j 09:07	20° <del>1</del> 16'42	
min. Earth dist.	-635 Sep 11 j 04:33	13° <del>1</del> 14'55	46.74427 AU				
opposition	-635 Sep 13 j 03:51	13° <del>1</del> 12'38	-17°-36'-48	conjunction	-626 Mar 19 j 12:08	21° <del>1</del> 44'47	-16°-48'-23
direct	-635 Dec 03 j 01:33	12° <del>1</del> 12'23		minimum elong	-626 Mar 19 j 12:15	21° <del>1</del> 44'47	16°48'24
				max. Earth dist.	-626 Mar 21 j 05:17	21° <del>1</del> 47'11	49.41325 AU
conjunction	-634 Mar 11 j 07:25	13° <del>1</del> 42'06	-16°-54'-17	retrograde	-626 Jun 30 j 15:01	23° <del>1</del> 16'39	
minimum elong	-634 Mar 11 j 07:27	13° <del>1</del> 42'07	16°54'18	min. Earth dist.	-626 Sep 20 j 19:16	22° <del>1</del> 17'38	47.53969 AU
max. Earth dist.	-634 Mar 13 j 09:17	13° <del>1</del> 45'04	48.70684 AU	opposition	-626 Sep 22 j 10:09	22° <del>1</del> 15'47	-17°-29'-8
retrograde	-634 Jun 22 j 14:41	15° <del>1</del> 15'46		direct	-626 Dec 12 j 12:55	21° <del>1</del> 16'11	
min. Earth dist.	-634 Sep 12 j 11:20	14° <del>1</del> 16'30	46.84927 AU				
opposition	-634 Sep 14 j 10:22	14° <del>1</del> 14'14	-17°-37'-7	conjunction	-625 Mar 20 j 18:22	22° <del>1</del> 44'07	-16°-46'-20
direct	-634 Dec 04 j 08:24	13° <del>1</del> 14'04		minimum elong	-625 Mar 20 j 18:28	22° <del>1</del> 44'08	16°46'21
				max. Earth dist.	-625 Mar 22 j 11:24	22° <del>1</del> 46'30	49.48666 AU
conjunction	-633 Mar 12 j 14:18	14° <del>1</del> 43'33	-16°-54'-33	retrograde	-625 Jul 01 j 22:40	24° <del>1</del> 15'50	
minimum elong	-633 Mar 12 j 14:22	14° <del>1</del> 43'34	16°54'34	min. Earth dist.	-625 Sep 22 j 02:47	23° <del>1</del> 16'50	47.61080 AU
max. Earth dist.	-633 Mar 14 j 14:26	14° <del>1</del> 46'25	48.80915 AU	opposition	-625 Sep 23 j 15:46	23° <del>1</del> 15'04	-17°-26'-47



Attention, astronomical year style is used: The year -625 in astronomical counting style is the year 626 BCE in historical counting style.

direct	-625 Dec 13 j 16:58	22° $\mathring{\text{K}}$ 15'35		min. Earth dist.	-617 Sep 30 j 05:48	1° $\mathring{\text{Y}}$ 06'13	48.00548 AU
				opposition	-617 Oct 01 j 09:28	1° $\mathring{\text{Y}}$ 04'55	-16°-58'-50
conjunction	-624 Mar 21 j 00:42	23° $\mathring{\text{K}}$ 43'24	-16°-44'00	direct	-617 Dec 21 j 16:15	0° $\mathring{\text{Y}}$ 05'47	
minimum elong	-624 Mar 21 j 00:49	23° $\mathring{\text{K}}$ 43'24	16°44'00				
max. Earth dist.	-624 Mar 22 j 16:09	23° $\mathring{\text{K}}$ 45'41	49.55621 AU	conjunction	-616 Mar 29 j 00:44	1° $\mathring{\text{Y}}$ 32'37	-16°-16'-28
retrograde	-624 Jul 02 j 05:00	25° $\mathring{\text{K}}$ 14'57		minimum elong	-616 Mar 29 j 00:53	1° $\mathring{\text{Y}}$ 32'37	16°16'29
min. Earth dist.	-624 Sep 22 j 08:22	24° $\mathring{\text{K}}$ 16'04	47.67763 AU	max. Earth dist.	-616 Mar 30 j 05:28	1° $\mathring{\text{Y}}$ 34'15	49.93762 AU
opposition	-624 Sep 23 j 21:04	24° $\mathring{\text{K}}$ 14'19	-17°-24'-10	retrograde	-616 Jul 09 j 22:16	3° $\mathring{\text{Y}}$ 02'56	
direct	-624 Dec 13 j 21:04	23° $\mathring{\text{K}}$ 14'54		min. Earth dist.	-616 Sep 30 j 11:27	2° $\mathring{\text{Y}}$ 04'02	48.03651 AU
				opposition	-616 Oct 01 j 14:13	2° $\mathring{\text{Y}}$ 02'45	-16°-54'-10
conjunction	-623 Mar 22 j 06:56	24° $\mathring{\text{K}}$ 42'37	-16°-41'-25	direct	-616 Dec 21 j 20:53	1° $\mathring{\text{Y}}$ 03'40	
minimum elong	-623 Mar 22 j 07:01	24° $\mathring{\text{K}}$ 42'37	16°41'26				
max. Earth dist.	-623 Mar 23 j 20:39	24° $\mathring{\text{K}}$ 44'48	49.62102 AU	conjunction	-615 Mar 30 j 06:28	2° $\mathring{\text{Y}}$ 30'23	-16°-11'-52
retrograde	-623 Jul 03 j 09:20	26° $\mathring{\text{K}}$ 14'01		minimum elong	-615 Mar 30 j 06:37	2° $\mathring{\text{Y}}$ 30'24	16°11'52
min. Earth dist.	-623 Sep 23 j 16:13	25° $\mathring{\text{K}}$ 15'07	47.73951 AU	max. Earth dist.	-615 Mar 31 j 11:07	2° $\mathring{\text{Y}}$ 32'01	49.96790 AU
opposition	-623 Sep 25 j 02:38	25° $\mathring{\text{K}}$ 13'29	-17°-21'-18	retrograde	-615 Jul 11 j 05:22	4° $\mathring{\text{Y}}$ 00'36	
direct	-623 Dec 15 j 04:29	24° $\mathring{\text{K}}$ 14'10		opposition	-615 Oct 02 j 19:04	3° $\mathring{\text{Y}}$ 00'28	-16°-49'-13
				min. Earth dist.	-615 Oct 01 j 17:43	3° $\mathring{\text{Y}}$ 01'40	48.06453 AU
conjunction	-622 Mar 23 j 13:07	25° $\mathring{\text{K}}$ 41'45	-16°-38'-35	direct	-615 Dec 23 j 00:40	2° $\mathring{\text{Y}}$ 01'25	
minimum elong	-622 Mar 23 j 13:15	25° $\mathring{\text{K}}$ 41'45	16°38'36				
max. Earth dist.	-622 Mar 25 j 02:17	25° $\mathring{\text{K}}$ 43'54	49.68072 AU	conjunction	-614 Mar 31 j 11:59	3° $\mathring{\text{Y}}$ 28'03	-16°-6'-59
retrograde	-622 Jul 04 j 12:58	27° $\mathring{\text{K}}$ 13'01		minimum elong	-614 Mar 31 j 12:07	3° $\mathring{\text{Y}}$ 28'03	16°07'00
min. Earth dist.	-622 Sep 24 j 22:35	26° $\mathring{\text{K}}$ 14'09	47.79588 AU	max. Earth dist.	-614 Apr 01 j 15:21	3° $\mathring{\text{Y}}$ 29'37	49.99538 AU
opposition	-622 Sep 26 j 08:02	26° $\mathring{\text{K}}$ 12'33	-17°-18'-11	retrograde	-614 Jul 12 j 12:55	4° $\mathring{\text{Y}}$ 58'08	
direct	-622 Dec 16 j 12:59	25° $\mathring{\text{K}}$ 13'18		opposition	-614 Oct 03 j 23:49	3° $\mathring{\text{Y}}$ 58'04	-16°-43'-59
				min. Earth dist.	-614 Oct 02 j 22:26	3° $\mathring{\text{Y}}$ 59'16	48.08957 AU
conjunction	-621 Mar 24 j 19:15	26° $\mathring{\text{K}}$ 40'45	-16°-35'-31	direct	-614 Dec 24 j 02:47	2° $\mathring{\text{Y}}$ 59'03	
minimum elong	-621 Mar 24 j 19:22	26° $\mathring{\text{K}}$ 40'45	16°35'32				
max. Earth dist.	-621 Mar 26 j 05:46	26° $\mathring{\text{K}}$ 42'45	49.73495 AU	conjunction	-613 Apr 01 j 17:37	4° $\mathring{\text{Y}}$ 25'38	-16°-1'-51
retrograde	-621 Jul 05 j 21:34	28° $\mathring{\text{K}}$ 11'51		minimum elong	-613 Apr 01 j 17:47	4° $\mathring{\text{Y}}$ 25'38	16°01'51
min. Earth dist.	-621 Sep 26 j 05:04	27° $\mathring{\text{K}}$ 13'00	47.84689 AU	max. Earth dist.	-613 Apr 02 j 19:42	4° $\mathring{\text{Y}}$ 27'07	50.01961 AU
opposition	-621 Sep 27 j 13:19	27° $\mathring{\text{K}}$ 11'28	-17°-14'-49	retrograde	-613 Jul 13 j 17:06	5° $\mathring{\text{Y}}$ 55'37	
direct	-621 Dec 17 j 16:36	26° $\mathring{\text{K}}$ 12'15		min. Earth dist.	-613 Oct 04 j 05:12	4° $\mathring{\text{Y}}$ 56'43	48.11121 AU
				opposition	-613 Oct 05 j 04:31	4° $\mathring{\text{Y}}$ 55'37	-16°-38'-29
conjunction	-620 Mar 25 j 01:27	27° $\mathring{\text{K}}$ 39'34	-16°-32'-13	direct	-613 Dec 25 j 08:10	3° $\mathring{\text{Y}}$ 56'39	
minimum elong	-620 Mar 25 j 01:35	27° $\mathring{\text{K}}$ 39'35	16°32'14				
max. Earth dist.	-620 Mar 26 j 11:22	27° $\mathring{\text{K}}$ 41'31	49.78386 AU	conjunction	-612 Apr 01 j 23:27	5° $\mathring{\text{Y}}$ 23'10	-15°-56'-27
retrograde	-620 Jul 06 j 04:23	29° $\mathring{\text{K}}$ 10'31		minimum elong	-612 Apr 01 j 23:35	5° $\mathring{\text{Y}}$ 23'10	15°56'29
opposition	-620 Sep 27 j 18:34	28° $\mathring{\text{K}}$ 10'11	-17°-11'-13	max. Earth dist.	-612 Apr 03 j 01:07	5° $\mathring{\text{Y}}$ 24'38	50.04024 AU
min. Earth dist.	-620 Sep 26 j 12:22	28° $\mathring{\text{K}}$ 11'37	47.89268 AU	retrograde	-612 Jul 13 j 19:03	6° $\mathring{\text{Y}}$ 53'04	
direct	-620 Dec 17 j 21:22	27° $\mathring{\text{K}}$ 11'00		min. Earth dist.	-612 Oct 04 j 10:34	5° $\mathring{\text{Y}}$ 54'12	48.12873 AU
				opposition	-612 Oct 05 j 09:09	5° $\mathring{\text{Y}}$ 53'08	-16°-32'-44
conjunction	-619 Mar 26 j 07:22	28° $\mathring{\text{K}}$ 38'10	-16°-28'-40	direct	-612 Dec 25 j 16:13	4° $\mathring{\text{Y}}$ 54'12	
minimum elong	-619 Mar 26 j 07:29	28° $\mathring{\text{K}}$ 38'11	16°28'41				
max. Earth dist.	-619 Mar 27 j 15:43	28° $\mathring{\text{K}}$ 40'02	49.82802 AU	conjunction	-611 Apr 03 j 05:01	6° $\mathring{\text{Y}}$ 20'40	-15°-50'-49
	-619 Jun 08 j 00:13	0° $\mathring{\text{Y}}$		minimum elong	-611 Apr 03 j 05:11	6° $\mathring{\text{Y}}$ 20'41	15°50'50
retrograde	-619 Jul 07 j 09:23	0° $\mathring{\text{Y}}$ 08'56		max. Earth dist.	-611 Apr 04 j 04:13	6° $\mathring{\text{Y}}$ 22'00	50.05645 AU
	-619 Aug 05 j 20:13	30° $\mathring{\text{R}}$ $\mathring{\text{K}}$		retrograde	-611 Jul 15 j 01:40	7° $\mathring{\text{Y}}$ 50'30	
opposition	-619 Sep 28 j 23:33	29° $\mathring{\text{K}}$ 08'39	-17°-7'-22	opposition	-611 Oct 06 j 13:49	6° $\mathring{\text{Y}}$ 50'37	-16°-26'-44
min. Earth dist.	-619 Sep 27 j 17:35	29° $\mathring{\text{K}}$ 10'04	47.93399 AU	min. Earth dist.	-611 Oct 05 j 16:30	6° $\mathring{\text{Y}}$ 51'37	48.14162 AU
direct	-619 Dec 19 j 01:56	28° $\mathring{\text{K}}$ 09'29		direct	-611 Dec 26 j 20:41	5° $\mathring{\text{Y}}$ 51'43	
conjunction	-618 Mar 27 j 13:11	29° $\mathring{\text{K}}$ 36'32	-16°-24'-52	conjunction	-610 Apr 04 j 10:48	7° $\mathring{\text{Y}}$ 18'08	-15°-44'-58
minimum elong	-618 Mar 27 j 13:19	29° $\mathring{\text{K}}$ 36'33	16°24'53	minimum elong	-610 Apr 04 j 10:57	7° $\mathring{\text{Y}}$ 18'09	15°44'59
max. Earth dist.	-618 Mar 28 j 20:04	29° $\mathring{\text{K}}$ 38'19	49.86794 AU	max. Earth dist.	-610 Apr 05 j 09:21	7° $\mathring{\text{Y}}$ 19'25	50.06768 AU
	-618 Apr 13 j 17:54	0° $\mathring{\text{Y}}$		retrograde	-610 Jul 16 j 08:01	8° $\mathring{\text{Y}}$ 47'54	
retrograde	-618 Jul 08 j 13:02	1° $\mathring{\text{Y}}$ 07'09		opposition	-610 Oct 07 j 18:31	7° $\mathring{\text{Y}}$ 48'03	-16°-20'-31
min. Earth dist.	-618 Sep 29 j 00:30	0° $\mathring{\text{Y}}$ 08'13	47.97148 AU	min. Earth dist.	-610 Oct 06 j 23:15	7° $\mathring{\text{Y}}$ 48'58	48.14923 AU
opposition	-618 Sep 30 j 04:36	0° $\mathring{\text{Y}}$ 06'53	-17°-3'-14	direct	-610 Dec 28 j 01:13	6° $\mathring{\text{Y}}$ 49'11	
	-618 Oct 06 j 05:52	30° $\mathring{\text{R}}$ $\mathring{\text{K}}$					
direct	-618 Dec 20 j 08:11	29° $\mathring{\text{K}}$ 07'44		conjunction	-609 Apr 05 j 16:30	8° $\mathring{\text{Y}}$ 15'32	-15°-38'-53
	-617 Mar 02 j 22:02	0° $\mathring{\text{Y}}$		minimum elong	-609 Apr 05 j 16:41	8° $\mathring{\text{Y}}$ 15'33	15°38'53
				max. Earth dist.	-609 Apr 06 j 13:11	8° $\mathring{\text{Y}}$ 16'43	50.07374 AU
conjunction	-617 Mar 28 j 19:00	0° $\mathring{\text{Y}}$ 34'41	-16°-20'-48	retrograde	-609 Jul 17 j 14:10	9° $\mathring{\text{Y}}$ 45'12	
minimum elong	-617 Mar 28 j 19:08	0° $\mathring{\text{Y}}$ 34'41	16°20'48	opposition	-609 Oct 08 j 23:05	8° $\mathring{\text{Y}}$ 45'23	-16°-14'-5
max. Earth dist.	-617 Mar 30 j 01:44	0° $\mathring{\text{Y}}$ 36'26	49.90440 AU	min. Earth dist.	-609 Oct 08 j 04:18	8° $\mathring{\text{Y}}$ 46'16	48.15155 AU
retrograde	-617 Jul 09 j 15:41	2° $\mathring{\text{Y}}$ 05'08		direct	-609 Dec 29 j 04:31	7° $\mathring{\text{Y}}$ 46'31	



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 19

Attention, astronomical year style is used: The year -608 in astronomical counting style is the year 609 BCE in historical counting style.

conjunction	-608 Apr 05 j 22:10	9°V12'50	-15°-32'-35	retrograde	-600 Jul 25 j 10:41	18°V17'58	
minimum elong	-608 Apr 05 j 22:19	9°V12'50	15°32'35	opposition	-600 Oct 16 j 14:34	17°V18'23	-15°-4'-56
max. Earth dist.	-608 Apr 06 j 16:55	9°V13'54	50.07447 AU	min. Earth dist.	-600 Oct 16 j 06:20	17°V18'46	47.99757 AU
retrograde	-608 Jul 17 j 18:34	10°V42'24		direct	-599 Jan 06 j 00:13	16°V19'33	
min. Earth dist.	-608 Oct 08 j 11:05	9°V43'23	48.14883 AU				
opposition	-608 Oct 09 j 03:37	9°V42'36	-16°-7'-25	conjunction	-599 Apr 14 j 23:43	17°V45'52	-14°-24'-53
direct	-608 Dec 29 j 09:47	8°V43'44		minimum elong	-599 Apr 14 j 23:54	17°V45'52	14°24'54
				max. Earth dist.	-599 Apr 15 j 08:32	17°V46'22	49.91511 AU
conjunction	-607 Apr 07 j 03:50	10°V10'00	-15°-26'-3	retrograde	-599 Jul 26 j 18:02	19°V15'09	
minimum elong	-607 Apr 07 j 04:01	10°V10'00	15°26'04	opposition	-599 Oct 17 j 18:54	18°V15'36	-14°-55'-59
max. Earth dist.	-607 Apr 07 j 22:09	10°V11'02	50.07054 AU	min. Earth dist.	-599 Oct 17 j 11:10	18°V15'58	47.96236 AU
retrograde	-607 Jul 18 j 20:45	11°V39'29		direct	-598 Jan 07 j 02:06	17°V16'47	
opposition	-607 Oct 10 j 08:03	10°V39'42	-16°00'-30				
min. Earth dist.	-607 Oct 09 j 16:07	10°V40'27	48.14158 AU	conjunction	-598 Apr 16 j 05:15	18°V43'08	-14°-16'-9
direct	-607 Dec 30 j 17:17	9°V40'49		minimum elong	-598 Apr 16 j 05:27	18°V43'09	14°16'09
				max. Earth dist.	-598 Apr 16 j 12:10	18°V43'32	49.87859 AU
conjunction	-606 Apr 08 j 09:08	11°V07'02	-15°-19'-17	retrograde	-598 Jul 27 j 23:40	20°V12'26	
minimum elong	-606 Apr 08 j 09:18	11°V07'02	15°19'17	opposition	-598 Oct 18 j 23:27	19°V12'53	-14°-46'-49
max. Earth dist.	-606 Apr 09 j 01:17	11°V07'57	50.06244 AU	min. Earth dist.	-598 Oct 18 j 18:05	19°V13'09	47.92190 AU
retrograde	-606 Jul 20 j 02:36	12°V36'27		direct	-597 Jan 08 j 06:26	18°V14'03	
opposition	-606 Oct 11 j 12:32	11°V36'41	-15°-53'-21				
min. Earth dist.	-606 Oct 10 j 21:45	11°V37'23	48.13055 AU	conjunction	-597 Apr 17 j 11:07	19°V40'27	-14°-7'-12
direct	-606 Dec 31 j 21:44	10°V37'48		minimum elong	-597 Apr 17 j 11:18	19°V40'28	14°07'13
				max. Earth dist.	-597 Apr 17 j 17:15	19°V40'48	49.83678 AU
conjunction	-605 Apr 09 j 14:44	12°V03'59	-15°-12'-16	retrograde	-597 Jul 29 j 01:40	21°V09'44	
minimum elong	-605 Apr 09 j 14:55	12°V03'59	15°12'17	opposition	-597 Oct 20 j 03:45	20°V10'11	-14°-37'-26
max. Earth dist.	-605 Apr 10 j 06:38	12°V04'53	50.05070 AU	min. Earth dist.	-597 Oct 19 j 23:14	20°V10'24	47.87594 AU
retrograde	-605 Jul 21 j 08:46	13°V33'21		direct	-596 Jan 09 j 13:50	19°V11'19	
opposition	-605 Oct 12 j 16:52	12°V33'35	-15°-45'-56				
min. Earth dist.	-605 Oct 12 j 03:34	12°V34'13	48.11604 AU	conjunction	-596 Apr 17 j 16:50	20°V37'45	-13°-58'-3
direct	-604 Jan 02 j 01:50	11°V34'42		minimum elong	-596 Apr 17 j 17:02	20°V37'46	13°58'04
				max. Earth dist.	-596 Apr 17 j 20:18	20°V37'57	49.78959 AU
conjunction	-604 Apr 09 j 20:15	13°V00'52	-15°-5'00	retrograde	-596 Jul 29 j 06:48	22°V07'02	
minimum elong	-604 Apr 09 j 20:25	13°V00'53	15°05'00	opposition	-596 Oct 20 j 08:12	21°V07'27	-14°-27'-50
max. Earth dist.	-604 Apr 10 j 10:45	13°V01'41	50.03589 AU	min. Earth dist.	-596 Oct 20 j 05:16	21°V07'36	47.82484 AU
retrograde	-604 Jul 21 j 16:22	14°V30'11		direct	-595 Jan 09 j 18:57	20°V08'32	
opposition	-604 Oct 12 j 21:12	13°V30'27	-15°-38'-15				
min. Earth dist.	-604 Oct 12 j 07:53	13°V31'05	48.09854 AU	conjunction	-595 Apr 18 j 22:29	21°V34'59	-13°-48'-40
direct	-603 Jan 02 j 03:28	12°V31'34		minimum elong	-595 Apr 18 j 22:40	21°V35'00	13°48'41
				max. Earth dist.	-595 Apr 19 j 01:19	21°V35'09	49.73735 AU
conjunction	-603 Apr 11 j 01:33	13°V57'44	-14°-57'-29	retrograde	-595 Jul 30 j 11:25	23°V04'16	
minimum elong	-603 Apr 11 j 01:44	13°V57'45	14°57'30	opposition	-595 Oct 21 j 12:37	22°V04'40	-14°-18'00
max. Earth dist.	-603 Apr 11 j 14:50	13°V58'29	50.01804 AU	min. Earth dist.	-595 Oct 21 j 11:18	22°V04'43	47.76891 AU
retrograde	-603 Jul 22 j 21:07	15°V27'01		direct	-594 Jan 11 j 00:55	21°V05'41	
opposition	-603 Oct 14 j 01:39	14°V27'19	-15°-30'-18				
min. Earth dist.	-603 Oct 13 j 14:11	14°V27'51	48.07815 AU	conjunction	-594 Apr 20 j 04:08	22°V32'10	-13°-39'-4
direct	-602 Jan 03 j 07:27	13°V28'27		minimum elong	-594 Apr 20 j 04:21	22°V32'10	13°39'05
				max. Earth dist.	-594 Apr 20 j 05:24	22°V32'14	49.68081 AU
conjunction	-602 Apr 12 j 07:04	14°V54'38	-14°-49'-42	retrograde	-594 Jul 31 j 19:08	24°V01'26	
minimum elong	-602 Apr 12 j 07:15	14°V54'39	14°49'43	opposition	-594 Oct 22 j 16:52	23°V01'48	-14°-7'-55
max. Earth dist.	-602 Apr 12 j 20:12	14°V55'23	49.99749 AU	min. Earth dist.	-594 Oct 22 j 15:55	23°V01'50	47.70894 AU
retrograde	-602 Jul 23 j 22:29	16°V23'54		direct	-593 Jan 12 j 03:02	22°V02'45	
opposition	-602 Oct 15 j 05:55	15°V24'14	-15°-22'-6				
min. Earth dist.	-602 Oct 14 j 18:41	15°V24'46	48.05480 AU	conjunction	-593 Apr 21 j 09:48	23°V29'17	-13°-29'-13
direct	-601 Jan 04 j 15:21	14°V25'23		minimum elong	-593 Apr 21 j 10:00	23°V29'18	13°29'13
				max. Earth dist.	-593 Apr 21 j 09:31	23°V29'16	49.62029 AU
conjunction	-601 Apr 13 j 12:27	15°V51'36	-14°-41'-40	retrograde	-593 Aug 02 j 01:38	24°V58'34	
minimum elong	-601 Apr 13 j 12:38	15°V51'36	14°41'41	opposition	-593 Oct 23 j 21:19	23°V58'53	-13°-57'-35
max. Earth dist.	-601 Apr 13 j 23:24	15°V52'13	49.97387 AU	min. Earth dist.	-593 Oct 23 j 22:26	23°V58'50	47.64529 AU
retrograde	-601 Jul 25 j 04:09	17°V20'52		direct	-592 Jan 13 j 05:59	22°V59'46	
opposition	-601 Oct 16 j 10:17	16°V21'15	-15°-13'-38				
min. Earth dist.	-601 Oct 16 j 00:16	16°V21'43	48.02822 AU	conjunction	-592 Apr 21 j 15:35	24°V26'22	-13°-19'-8
direct	-600 Jan 05 j 20:18	15°V22'25		minimum elong	-592 Apr 21 j 15:47	24°V26'23	13°19'09
				max. Earth dist.	-592 Apr 21 j 14:59	24°V26'20	49.55640 AU
conjunction	-600 Apr 13 j 18:06	16°V48'40	-14°-33'-23	retrograde	-592 Aug 02 j 03:36	25°V55'40	
minimum elong	-600 Apr 13 j 18:18	16°V48'41	14°33'24	opposition	-592 Oct 24 j 01:34	24°V55'57	-13°-47'00
max. Earth dist.	-600 Apr 14 j 04:43	16°V49'16	49.94659 AU	min. Earth dist.	-592 Oct 24 j 02:54	24°V55'54	47.57833 AU



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 20

Attention, astronomical year style is used: The year -591 in astronomical counting style is the year 592 BCE in historical counting style.

direct	-591 Jan 13 j 13:25	23° $\Upsilon$ 56'47		opposition	-584 Oct 31 j 14:07	2° $\mathcal{B}$ 37'47	-12°-13'-16
				min. Earth dist.	-584 Nov 01 j 01:10	2° $\mathcal{B}$ 37'16	46.90976 AU
conjunction	-591 Apr 22 j 21:12	25° $\Upsilon$ 23'28	-13°-8'-48	direct	-583 Jan 21 j 02:28	1° $\mathcal{B}$ 38'14	
minimum elong	-591 Apr 22 j 21:24	25° $\Upsilon$ 23'29	13°08'47				
max. Earth dist.	-591 Apr 22 j 18:29	25° $\Upsilon$ 23'19	49.48942 AU	conjunction	-583 Apr 30 j 21:20	3° $\mathcal{B}$ 06'01	-11°-37'-24
retrograde	-591 Aug 03 j 08:02	26° $\Upsilon$ 52'49		minimum elong	-583 Apr 30 j 21:33	3° $\mathcal{B}$ 06'02	11°37'25
opposition	-591 Oct 25 j 06:02	25° $\Upsilon$ 53'05	-13°-36'-9	max. Earth dist.	-583 Apr 30 j 07:33	3° $\mathcal{B}$ 05'14	48.81559 AU
min. Earth dist.	-591 Oct 25 j 08:27	25° $\Upsilon$ 52'58	47.50850 AU	retrograde	-583 Aug 11 j 10:20	4° $\mathcal{B}$ 36'10	
direct	-590 Jan 14 j 18:55	24° $\Upsilon$ 53'52		opposition	-583 Nov 01 j 18:56	3° $\mathcal{B}$ 36'13	-12°00'-28
				min. Earth dist.	-583 Nov 02 j 08:14	3° $\mathcal{B}$ 35'35	46.80493 AU
conjunction	-590 Apr 24 j 02:53	26° $\Upsilon$ 20'39	-12°-58'-12	direct	-582 Jan 22 j 04:45	2° $\mathcal{B}$ 36'33	
minimum elong	-590 Apr 24 j 03:04	26° $\Upsilon$ 20'40	12°58'13				
max. Earth dist.	-590 Apr 24 j 00:03	26° $\Upsilon$ 20'29	49.41950 AU	conjunction	-582 May 02 j 03:34	4° $\mathcal{B}$ 04'30	-11°-24'-57
retrograde	-590 Aug 04 j 13:34	27° $\Upsilon$ 50'05		minimum elong	-582 May 02 j 03:46	4° $\mathcal{B}$ 04'31	11°24'56
opposition	-590 Oct 26 j 10:35	26° $\Upsilon$ 50'19	-13°-25'-3	max. Earth dist.	-582 May 01 j 13:18	4° $\mathcal{B}$ 03'41	48.71024 AU
min. Earth dist.	-590 Oct 26 j 14:22	26° $\Upsilon$ 50'08	47.43556 AU	retrograde	-582 Aug 12 j 13:27	5° $\mathcal{B}$ 34'45	
direct	-589 Jan 15 j 23:49	25° $\Upsilon$ 51'05		opposition	-582 Nov 02 j 23:41	4° $\mathcal{B}$ 34'43	-11°-47'-26
				min. Earth dist.	-582 Nov 03 j 13:16	4° $\mathcal{B}$ 34'04	46.69601 AU
conjunction	-589 Apr 25 j 08:43	27° $\Upsilon$ 17'58	-12°-47'-21	direct	-581 Jan 23 j 12:17	3° $\mathcal{B}$ 34'57	
minimum elong	-589 Apr 25 j 08:55	27° $\Upsilon$ 17'59	12°47'22				
max. Earth dist.	-589 Apr 25 j 04:23	27° $\Upsilon$ 17'43	49.34658 AU	conjunction	-581 May 03 j 09:51	5° $\mathcal{B}$ 03'03	-11°-12'-14
retrograde	-589 Aug 05 j 21:14	28° $\Upsilon$ 47'29		minimum elong	-581 May 03 j 10:04	5° $\mathcal{B}$ 03'04	11°12'15
opposition	-589 Oct 27 j 14:55	27° $\Upsilon$ 47'44	-13°-13'-41	max. Earth dist.	-581 May 02 j 17:20	5° $\mathcal{B}$ 02'06	48.60105 AU
min. Earth dist.	-589 Oct 27 j 18:58	27° $\Upsilon$ 47'32	47.35940 AU	retrograde	-581 Aug 13 j 17:08	6° $\mathcal{B}$ 33'25	
direct	-588 Jan 17 j 01:56	26° $\Upsilon$ 48'27		opposition	-581 Nov 04 j 04:26	5° $\mathcal{B}$ 33'18	-11°-34'-8
				min. Earth dist.	-581 Nov 04 j 19:30	5° $\mathcal{B}$ 32'35	46.58366 AU
conjunction	-588 Apr 25 j 14:38	28° $\Upsilon$ 15'29	-12°-36'-16	direct	-580 Jan 24 j 19:15	4° $\mathcal{B}$ 33'26	
minimum elong	-588 Apr 25 j 14:50	28° $\Upsilon$ 15'30	12°36'17				
max. Earth dist.	-588 Apr 25 j 08:39	28° $\Upsilon$ 15'09	49.26999 AU	conjunction	-580 May 03 j 16:21	6° $\mathcal{B}$ 01'43	-10°-59'-17
retrograde	-588 Aug 06 j 03:40	29° $\Upsilon$ 45'06		minimum elong	-580 May 03 j 16:32	6° $\mathcal{B}$ 01'43	10°59'17
opposition	-588 Oct 27 j 19:32	28° $\Upsilon$ 45'20	-13°-2'-4	max. Earth dist.	-580 May 02 j 23:36	6° $\mathcal{B}$ 00'45	48.48856 AU
min. Earth dist.	-588 Oct 28 j 01:49	28° $\Upsilon$ 45'02	47.27935 AU	retrograde	-580 Aug 13 j 21:35	7° $\mathcal{B}$ 32'12	
direct	-587 Jan 17 j 05:51	27° $\Upsilon$ 46'03		opposition	-580 Nov 04 j 09:23	6° $\mathcal{B}$ 32'01	-11°-20'-34
				min. Earth dist.	-580 Nov 05 j 01:37	6° $\mathcal{B}$ 31'14	46.46818 AU
conjunction	-587 Apr 26 j 20:35	29° $\Upsilon$ 13'14	-12°-24'-57	direct	-579 Jan 25 j 02:08	5° $\mathcal{B}$ 32'02	
minimum elong	-587 Apr 26 j 20:48	29° $\Upsilon$ 13'15	12°24'57				
max. Earth dist.	-587 Apr 26 j 14:09	29° $\Upsilon$ 12'52	49.18927 AU	conjunction	-579 May 04 j 22:34	7° $\mathcal{B}$ 00'29	-10°-46'-4
	-587 Jun 01 j 19:15	0° $\mathcal{B}$		minimum elong	-579 May 04 j 22:46	7° $\mathcal{B}$ 00'30	10°46'05
retrograde	-587 Aug 07 j 06:56	0° $\mathcal{B}$ 42'57		max. Earth dist.	-579 May 04 j 04:26	6° $\mathcal{B}$ 59'27	48.37333 AU
	-587 Oct 14 j 02:11	30° $\mathcal{R}\Upsilon$		retrograde	-579 Aug 15 j 05:33	8° $\mathcal{B}$ 31'08	
opposition	-587 Oct 29 j 00:07	29° $\Upsilon$ 43'11	-12°-50'-13	opposition	-579 Nov 05 j 14:19	7° $\mathcal{B}$ 30'52	-11°-6'-44
min. Earth dist.	-587 Oct 29 j 07:00	29° $\Upsilon$ 42'51	47.19472 AU	min. Earth dist.	-579 Nov 06 j 06:38	7° $\mathcal{B}$ 30'05	46.35011 AU
direct	-586 Jan 18 j 12:44	28° $\Upsilon$ 43'50		direct	-578 Jan 26 j 05:10	6° $\mathcal{B}$ 30'47	
	-586 Apr 19 j 21:49	0° $\mathcal{B}$		max. Earth dist.	-578 May 05 j 09:37	7° $\mathcal{B}$ 58'19	48.25540 AU
conjunction	-586 Apr 28 j 02:36	0° $\mathcal{B}$ 11'11	-12°-13'-24	conjunction	-578 May 06 j 05:04	7° $\mathcal{B}$ 59'27	-10°-32'-36
minimum elong	-586 Apr 28 j 02:48	0° $\mathcal{B}$ 11'12	12°13'25	minimum elong	-578 May 06 j 05:16	7° $\mathcal{B}$ 59'27	10°32'36
max. Earth dist.	-586 Apr 27 j 17:27	0° $\mathcal{B}$ 10'40	49.10368 AU	retrograde	-578 Aug 16 j 13:17	9° $\mathcal{B}$ 30'15	
retrograde	-586 Aug 08 j 12:45	1° $\mathcal{B}$ 41'01		opposition	-578 Nov 06 j 19:23	8° $\mathcal{B}$ 29'56	-10°-52'-37
opposition	-586 Oct 30 j 04:44	0° $\mathcal{B}$ 41'14	-12°-38'-8	min. Earth dist.	-578 Nov 07 j 13:33	8° $\mathcal{B}$ 29'03	46.22940 AU
min. Earth dist.	-586 Oct 30 j 13:24	0° $\mathcal{B}$ 40'49	47.10508 AU	direct	-577 Jan 27 j 08:34	7° $\mathcal{B}$ 29'45	
	-586 Dec 08 j 23:34	30° $\mathcal{R}\Upsilon$					
direct	-585 Jan 19 j 17:49	29° $\Upsilon$ 41'50		conjunction	-577 May 07 j 11:47	8° $\mathcal{B}$ 58'38	-10°-18'-51
	-585 Mar 02 j 02:10	0° $\mathcal{B}$		minimum elong	-577 May 07 j 11:58	8° $\mathcal{B}$ 58'38	10°18'53
				max. Earth dist.	-577 May 06 j 16:06	8° $\mathcal{B}$ 57'30	48.13490 AU
conjunction	-585 Apr 29 j 08:54	1° $\mathcal{B}$ 09'20	-12°-1'-37	retrograde	-577 Aug 17 j 19:04	10° $\mathcal{B}$ 29'36	
minimum elong	-585 Apr 29 j 09:06	1° $\mathcal{B}$ 09'21	12°01'38	opposition	-577 Nov 08 j 00:28	9° $\mathcal{B}$ 29'13	-10°-38'-14
max. Earth dist.	-585 Apr 28 j 22:52	1° $\mathcal{B}$ 08'46	49.01281 AU	min. Earth dist.	-577 Nov 08 j 18:51	9° $\mathcal{B}$ 28'20	46.10581 AU
retrograde	-585 Aug 09 j 17:36	2° $\mathcal{B}$ 39'17		direct	-576 Jan 28 j 14:40	8° $\mathcal{B}$ 28'57	
opposition	-585 Oct 31 j 09:31	1° $\mathcal{B}$ 39'27	-12°-25'-49				
min. Earth dist.	-585 Oct 31 j 19:53	1° $\mathcal{B}$ 38'57	47.00996 AU	conjunction	-576 May 07 j 18:27	9° $\mathcal{B}$ 58'05	-10°-4'-51
direct	-584 Jan 21 j 00:05	0° $\mathcal{B}$ 39'59		minimum elong	-576 May 07 j 18:39	9° $\mathcal{B}$ 58'06	10°04'51
				max. Earth dist.	-576 May 06 j 20:28	9° $\mathcal{B}$ 56'49	48.01123 AU
conjunction	-584 Apr 29 j 15:07	2° $\mathcal{B}$ 07'37	-11°-49'-37	retrograde	-576 Aug 18 j 01:19	11° $\mathcal{B}$ 29'15	
minimum elong	-584 Apr 29 j 15:19	2° $\mathcal{B}$ 07'38	11°49'38	opposition	-576 Nov 08 j 05:38	10° $\mathcal{B}$ 28'49	-10°-23'-35
max. Earth dist.	-584 Apr 29 j 03:09	2° $\mathcal{B}$ 06'56	48.91670 AU	min. Earth dist.	-576 Nov 09 j 01:37	10° $\mathcal{B}$ 27'51	45.97889 AU
retrograde	-584 Aug 10 j 01:57	3° $\mathcal{B}$ 37'40		direct	-575 Jan 28 j 20:28	9° $\mathcal{B}$ 28'27	



# Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 21

Attention, astronomical year style is used: The year -575 in astronomical counting style is the year 576 BCE in historical counting style.

max. Earth dist.	-575 May 08 j 02:57	10°♄56'32	47.88380 AU	min. Earth dist.	-568 Nov 17 j 09:40	18°♄33'57	44.80292 AU
				direct	-567 Feb 05 j 18:44	17°♄33'58	
conjunction	-575 May 09 j 01:26	10°♄57'51	-9°-50'-36	max. Earth dist.	-567 May 16 j 03:33	19°♄03'40	46.70321 AU
minimum elong	-575 May 09 j 01:36	10°♄57'51	9°50'37				
retrograde	-575 Aug 19 j 05:34	12°♄29'14		conjunction	-567 May 17 j 12:55	19°♄05'38	-7°-47'-44
opposition	-575 Nov 09 j 11:00	11°♄28'43	-10°-8'-40	minimum elong	-567 May 17 j 13:05	19°♄05'39	7°47'44
min. Earth dist.	-575 Nov 10 j 08:24	11°♄27'41	45.84781 AU	retrograde	-567 Aug 27 j 16:49	20°♄38'55	
direct	-574 Jan 30 j 03:47	10°♄28'16		opposition	-567 Nov 17 j 09:26	19°♄37'32	-7°-59'-59
max. Earth dist.	-574 May 09 j 08:02	11°♄56'29	47.75204 AU	min. Earth dist.	-567 Nov 18 j 15:45	19°♄36'02	44.63986 AU
				direct	-566 Feb 07 j 01:08	18°♄35'54	
conjunction	-574 May 10 j 08:22	11°♄57'54	-9°-36'-7	max. Earth dist.	-566 May 17 j 09:15	20°♄05'50	46.54031 AU
minimum elong	-574 May 10 j 08:34	11°♄57'55	9°36'07				
retrograde	-574 Aug 20 j 13:39	13°♄29'31		conjunction	-566 May 18 j 20:45	20°♄07'57	-7°-31'-11
opposition	-574 Nov 10 j 16:27	12°♄28'56	-9°-53'-30	minimum elong	-566 May 18 j 20:54	20°♄07'57	7°31'12
min. Earth dist.	-574 Nov 11 j 14:38	12°♄27'51	45.71210 AU	retrograde	-566 Aug 29 j 00:55	21°♄41'32	
direct	-573 Jan 31 j 08:09	11°♄28'21		opposition	-566 Nov 18 j 15:51	20°♄40'02	-7°-42'-39
				min. Earth dist.	-566 Nov 19 j 23:40	20°♄38'27	44.47444 AU
conjunction	-573 May 11 j 15:40	12°♄58'16	-9°-21'-23	direct	-565 Feb 08 j 07:54	19°♄38'16	
minimum elong	-573 May 11 j 15:50	12°♄58'16	9°21'23	max. Earth dist.	-565 May 18 j 17:27	21°♄08'34	46.37490 AU
max. Earth dist.	-573 May 10 j 13:19	12°♄56'44	47.61520 AU				
retrograde	-573 Aug 21 j 23:05	14°♄30'05		conjunction	-565 May 20 j 05:03	21°♄10'41	-7°-14'-23
opposition	-573 Nov 11 j 22:03	13°♄29'24	-9°-38'-5	minimum elong	-565 May 20 j 05:13	21°♄10'42	7°14'23
min. Earth dist.	-573 Nov 12 j 22:39	13°♄28'12	45.57127 AU	retrograde	-565 Aug 30 j 06:17	22°♄44'36	
direct	-572 Feb 01 j 11:25	12°♄28'42		opposition	-565 Nov 19 j 22:18	21°♄43'01	-7°-25'-1
				min. Earth dist.	-565 Nov 21 j 06:59	21°♄41'23	44.30631 AU
conjunction	-572 May 11 j 23:05	13°♄58'52	-9°-6'-24	direct	-564 Feb 09 j 16:26	20°♄41'06	
minimum elong	-572 May 11 j 23:16	13°♄58'53	9°06'25	max. Earth dist.	-564 May 19 j 00:05	22°♄11'41	46.20673 AU
max. Earth dist.	-572 May 10 j 19:55	13°♄57'17	47.47342 AU				
	-572 Jun 28 j 11:34	15°♄		conjunction	-564 May 20 j 13:23	22°♄13'56	-6°-57'-18
retrograde	-572 Aug 22 j 05:19	15°♄30'54		minimum elong	-564 May 20 j 13:32	22°♄13'56	6°57'19
	-572 Oct 16 j 11:11	15°♄		retrograde	-564 Aug 30 j 14:26	23°♄48'12	
opposition	-572 Nov 12 j 03:43	14°♄30'07	-9°-22'-24	opposition	-564 Nov 20 j 04:57	22°♄46'30	-7°-7'-6
min. Earth dist.	-572 Nov 13 j 04:43	14°♄28'54	45.42551 AU	min. Earth dist.	-564 Nov 21 j 14:22	22°♄44'50	44.13523 AU
direct	-571 Feb 01 j 18:04	13°♄29'16		direct	-563 Feb 09 j 22:40	21°♄44'27	
max. Earth dist.	-571 May 12 j 00:36	14°♄57'59	47.32684 AU	max. Earth dist.	-563 May 20 j 07:10	23°♄15'22	46.03499 AU
conjunction	-571 May 13 j 06:15	14°♄59'43	-8°-51'-11	conjunction	-563 May 21 j 21:51	23°♄17'42	-6°-39'-57
minimum elong	-571 May 13 j 06:25	14°♄59'44	8°51'11	minimum elong	-563 May 21 j 22:00	23°♄17'42	6°39'57
	-571 May 13 j 11:06	15°♄		retrograde	-563 Sep 01 j 01:01	24°♄52'20	
retrograde	-571 Aug 23 j 11:20	16°♄31'58		opposition	-563 Nov 21 j 11:56	23°♄50'32	-6°-48'-54
opposition	-571 Nov 13 j 09:32	15°♄31'04	-9°-6'-28	min. Earth dist.	-563 Nov 22 j 23:27	23°♄48'45	43.96028 AU
min. Earth dist.	-571 Nov 14 j 12:21	15°♄29'45	45.27531 AU	direct	-562 Feb 11 j 02:51	22°♄48'20	
	-571 Dec 11 j 02:43	15°♄		max. Earth dist.	-562 May 21 j 15:08	24°♄19'36	45.85918 AU
direct	-570 Feb 03 j 01:04	14°♄30'04					
	-570 Mar 28 j 08:49	15°♄		conjunction	-562 May 23 j 06:43	24°♄21'59	-6°-22'-19
max. Earth dist.	-570 May 13 j 07:47	15°♄59'02	47.17597 AU	minimum elong	-562 May 23 j 06:52	24°♄22'00	6°22'20
				retrograde	-562 Sep 02 j 11:11	25°♄57'00	
conjunction	-570 May 14 j 13:49	16°♄00'48	-8°-35'-43	opposition	-562 Nov 22 j 18:51	24°♄55'04	-6°-30'-26
minimum elong	-570 May 14 j 14:00	16°♄00'48	8°35'44	min. Earth dist.	-562 Nov 24 j 06:49	24°♄53'16	43.78089 AU
retrograde	-570 Aug 24 j 15:44	17°♄33'16		direct	-561 Feb 12 j 08:17	23°♄52'41	
opposition	-570 Nov 14 j 15:19	16°♄32'15	-8°-50'-16	max. Earth dist.	-561 May 22 j 21:31	25°♄24'14	45.67856 AU
min. Earth dist.	-570 Nov 15 j 19:23	16°♄30'52	45.12106 AU				
direct	-569 Feb 04 j 09:36	15°♄31'05		conjunction	-561 May 24 j 15:47	25°♄26'47	-6°-4'-27
				minimum elong	-561 May 24 j 15:55	25°♄26'48	6°04'27
conjunction	-569 May 15 j 21:24	17°♄02'07	-8°-19'-59	retrograde	-561 Sep 03 j 20:28	27°♄02'09	
minimum elong	-569 May 15 j 21:34	17°♄02'07	8°19'59	opposition	-561 Nov 24 j 02:12	26°♄00'04	-6°-11'-40
max. Earth dist.	-569 May 14 j 13:33	17°♄00'14	47.02147 AU	min. Earth dist.	-561 Nov 25 j 16:21	25°♄58'09	43.59668 AU
retrograde	-569 Aug 26 j 00:01	18°♄34'50		direct	-560 Feb 13 j 16:09	24°♄57'30	
opposition	-569 Nov 15 j 21:11	17°♄33'42	-8°-33'-47	max. Earth dist.	-560 May 23 j 06:12	26°♄29'26	45.49303 AU
min. Earth dist.	-569 Nov 17 j 01:42	17°♄32'17	44.96349 AU				
direct	-568 Feb 05 j 14:17	16°♄32'22		conjunction	-560 May 25 j 01:04	26°♄32'02	-5°-46'-19
max. Earth dist.	-568 May 14 j 19:57	18°♄01'45	46.86364 AU	minimum elong	-560 May 25 j 01:12	26°♄32'02	5°46'19
				retrograde	-560 Sep 04 j 02:06	28°♄07'45	
conjunction	-568 May 16 j 05:04	18°♄03'43	-8°-3'-59	opposition	-560 Nov 24 j 09:38	27°♄05'30	-5°-52'-38
minimum elong	-568 May 16 j 05:14	18°♄03'43	8°04'00	min. Earth dist.	-560 Nov 26 j 00:54	27°♄03'31	43.40759 AU
retrograde	-568 Aug 26 j 08:38	19°♄36'43		direct	-559 Feb 14 j 03:22	26°♄02'43	
opposition	-568 Nov 16 j 03:18	18°♄35'26	-8°-17'-2	max. Earth dist.	-559 May 24 j 13:15	27°♄34'56	45.30293 AU



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 22

Attention, astronomical year style is used: The year -559 in astronomical counting style is the year 560 BCE in historical counting style.

conjunction	-559 May 26 j 10:22	27° <b>8</b> 37'41	-5°-27'-54	max. Earth dist.	-551 Jun 02 j 14:10	6° <b>II</b> 35'50	43.67123 AU
minimum elong	-559 May 26 j 10:31	27° <b>8</b> 37'41	5°27'55				
retrograde	-559 Sep 05 j 10:42	29° <b>8</b> 13'46		conjunction	-551 Jun 04 j 20:30	6° <b>II</b> 39'16	-2°-50'-48
opposition	-559 Nov 25 j 17:08	28° <b>8</b> 11'20	-5°-33'-20	minimum elong	-551 Jun 04 j 20:35	6° <b>II</b> 39'16	2°50'49
min. Earth dist.	-559 Nov 27 j 09:21	28° <b>8</b> 09'18	43.21426 AU	retrograde	-551 Sep 14 j 21:24	8° <b>II</b> 19'01	
direct	-558 Feb 15 j 11:21	27° <b>8</b> 08'19		opposition	-551 Dec 04 j 13:04	7° <b>II</b> 15'02	-2°-48'-8
max. Earth dist.	-558 May 25 j 21:32	28° <b>8</b> 40'52	45.10856 AU	min. Earth dist.	-551 Dec 06 j 13:53	7° <b>II</b> 12'30	41.56521 AU
				direct	-550 Feb 24 j 03:23	6° <b>II</b> 10'08	
conjunction	-558 May 27 j 19:56	28° <b>8</b> 43'43	-5°-9'-14	max. Earth dist.	-550 Jun 04 j 01:27	7° <b>II</b> 46'24	43.45568 AU
minimum elong	-558 May 27 j 20:03	28° <b>8</b> 43'43	5°09'15				
	-558 Jul 26 j 08:51	0° <b>II</b>		conjunction	-550 Jun 06 j 08:05	7° <b>II</b> 49'52	-2°-29'-55
retrograde	-558 Sep 06 j 19:16	0° <b>II</b> 20'11		minimum elong	-550 Jun 06 j 08:09	7° <b>II</b> 49'52	2°29'54
	-558 Oct 19 j 16:21	30° <b>R</b> 8		retrograde	-550 Sep 16 j 08:43	9° <b>II</b> 30'10	
opposition	-558 Nov 27 j 00:59	29° <b>8</b> 17'33	-5°-13'-43	opposition	-550 Dec 05 j 22:43	8° <b>II</b> 26'00	-2°-26'-8
min. Earth dist.	-558 Nov 28 j 19:10	29° <b>8</b> 15'24	43.01694 AU	min. Earth dist.	-550 Dec 08 j 00:10	8° <b>II</b> 23'25	41.34714 AU
direct	-557 Feb 16 j 18:52	28° <b>8</b> 14'17		direct	-549 Feb 25 j 14:59	7° <b>II</b> 20'51	
max. Earth dist.	-557 May 27 j 06:36	29° <b>8</b> 47'14	44.91062 AU	max. Earth dist.	-549 Jun 05 j 10:42	8° <b>II</b> 57'36	43.23624 AU
conjunction	-557 May 29 j 05:44	29° <b>8</b> 50'08	-4°-50'-18	conjunction	-549 Jun 07 j 19:55	9° <b>II</b> 01'15	-2°-8'-45
minimum elong	-557 May 29 j 05:51	29° <b>8</b> 50'08	4°50'19	minimum elong	-549 Jun 07 j 19:58	9° <b>II</b> 01'16	2°08'45
	-557 Jun 04 j 22:17	0° <b>II</b>		retrograde	-549 Sep 17 j 21:05	10° <b>II</b> 42'07	
retrograde	-557 Sep 08 j 05:58	1° <b>II</b> 26'59		opposition	-549 Dec 07 j 08:35	9° <b>II</b> 37'45	-2°-3'-51
opposition	-557 Nov 28 j 08:45	0° <b>II</b> 24'09	-4°-53'-50	min. Earth dist.	-549 Dec 09 j 11:30	9° <b>II</b> 35'05	41.12522 AU
min. Earth dist.	-557 Nov 30 j 03:07	0° <b>II</b> 21'59	42.81638 AU	direct	-548 Feb 27 j 01:24	8° <b>II</b> 32'20	
	-557 Dec 18 j 14:18	30° <b>R</b> 8		max. Earth dist.	-548 Jun 05 j 22:04	10° <b>II</b> 09'39	43.01270 AU
direct	-556 Feb 18 j 01:52	29° <b>8</b> 20'38					
	-556 Apr 18 j 13:32	0° <b>II</b>		conjunction	-548 Jun 08 j 08:11	10° <b>II</b> 13'24	-1°-47'-19
max. Earth dist.	-556 May 27 j 14:19	0° <b>II</b> 53'55	44.70957 AU	minimum elong	-548 Jun 08 j 08:14	10° <b>II</b> 13'24	1°47'19
				retrograde	-548 Sep 18 j 06:32	11° <b>II</b> 54'51	
conjunction	-556 May 29 j 15:37	0° <b>II</b> 56'57	-4°-31'-5	opposition	-548 Dec 07 j 18:57	10° <b>II</b> 50'15	-1°-41'-15
minimum elong	-556 May 29 j 15:43	0° <b>II</b> 56'58	4°31'05	min. Earth dist.	-548 Dec 09 j 23:25	10° <b>II</b> 47'29	40.89929 AU
retrograde	-556 Sep 08 j 18:00	2° <b>II</b> 34'13		direct	-547 Feb 27 j 12:45	9° <b>II</b> 44'33	
opposition	-556 Nov 28 j 16:58	1° <b>II</b> 31'10	-4°-33'-38	max. Earth dist.	-547 Jun 07 j 09:02	11° <b>II</b> 22'25	42.78544 AU
min. Earth dist.	-556 Nov 30 j 13:04	1° <b>II</b> 28'55	42.61318 AU				
direct	-555 Feb 18 j 08:31	0° <b>II</b> 27'25		conjunction	-547 Jun 09 j 20:25	11° <b>II</b> 26'16	-1°-25'-37
max. Earth dist.	-555 May 29 j 00:29	2° <b>II</b> 01'11	44.50609 AU	minimum elong	-547 Jun 09 j 20:27	11° <b>II</b> 26'16	1°25'37
				retrograde	-547 Sep 19 j 18:42	13° <b>II</b> 08'19	
conjunction	-555 May 31 j 01:37	2° <b>II</b> 04'14	-4°-11'-35	opposition	-547 Dec 09 j 05:23	12° <b>II</b> 03'28	-1°-18'-23
minimum elong	-555 May 31 j 01:44	2° <b>II</b> 04'14	4°11'36	min. Earth dist.	-547 Dec 11 j 10:18	12° <b>II</b> 00'40	40.66986 AU
retrograde	-555 Sep 10 j 02:03	3° <b>II</b> 41'56		direct	-546 Feb 28 j 22:11	10° <b>II</b> 57'28	
opposition	-555 Nov 30 j 01:22	2° <b>II</b> 38'40	-4°-13'-8	max. Earth dist.	-546 Jun 08 j 19:47	12° <b>II</b> 35'52	42.55463 AU
min. Earth dist.	-555 Dec 01 j 21:45	2° <b>II</b> 36'24	42.40772 AU				
direct	-554 Feb 19 j 18:53	1° <b>II</b> 34'40		conjunction	-546 Jun 11 j 09:10	12° <b>II</b> 39'52	-1°-3'-38
max. Earth dist.	-554 May 30 j 08:59	3° <b>II</b> 08'50	44.30059 AU	minimum elong	-546 Jun 11 j 09:11	12° <b>II</b> 39'52	1°03'39
				retrograde	-546 Sep 21 j 09:27	14° <b>II</b> 22'31	
conjunction	-554 Jun 01 j 11:53	3° <b>II</b> 12'01	-3°-51'-49	opposition	-546 Dec 10 j 16:08	13° <b>II</b> 17'24	0°-55'-12
minimum elong	-554 Jun 01 j 11:58	3° <b>II</b> 12'01	3°51'49	min. Earth dist.	-546 Dec 12 j 23:08	13° <b>II</b> 14'28	40.43733 AU
retrograde	-554 Sep 11 j 11:04	4° <b>II</b> 50'10		direct	-545 Mar 02 j 05:43	12° <b>II</b> 11'04	
opposition	-554 Dec 01 j 09:49	3° <b>II</b> 46'44	-3°-52'-21	max. Earth dist.	-545 Jun 10 j 08:43	13° <b>II</b> 50'09	42.32101 AU
min. Earth dist.	-554 Dec 03 j 07:00	3° <b>II</b> 44'24	42.20047 AU				
direct	-553 Feb 21 j 04:06	2° <b>II</b> 42'29		conjunction	-545 Jun 12 j 22:15	13° <b>II</b> 54'10	0°-41'-24
max. Earth dist.	-553 May 31 j 18:57	4° <b>II</b> 17'09	44.09308 AU	minimum elong	-545 Jun 12 j 22:16	13° <b>II</b> 54'10	0°41'25
				retrograde	-545 Sep 22 j 22:23	15° <b>II</b> 37'26	
conjunction	-553 Jun 02 j 22:35	4° <b>II</b> 20'24	-3°-31'-45	opposition	-545 Dec 12 j 03:11	14° <b>II</b> 32'03	0°-31'-44
minimum elong	-553 Jun 02 j 22:40	4° <b>II</b> 20'24	3°31'47	min. Earth dist.	-545 Dec 14 j 10:14	14° <b>II</b> 29'06	40.20229 AU
retrograde	-553 Sep 12 j 20:29	5° <b>II</b> 59'03		direct	-544 Mar 02 j 17:13	13° <b>II</b> 25'24	
opposition	-553 Dec 02 j 18:44	4° <b>II</b> 55'26	-3°-31'-14	max. Earth dist.	-544 Jun 10 j 19:51	15° <b>II</b> 05'02	42.08509 AU
min. Earth dist.	-553 Dec 04 j 17:23	4° <b>II</b> 53'01	41.99117 AU				
direct	-552 Feb 22 j 12:46	3° <b>II</b> 50'58		conjunction	-544 Jun 13 j 11:22	15° <b>II</b> 09'13	0°-18'-54
max. Earth dist.	-552 Jun 01 j 05:01	5° <b>II</b> 26'09	43.88352 AU	minimum elong	-544 Jun 13 j 11:22	15° <b>II</b> 09'13	0°18'55
				retrograde	-544 Sep 23 j 12:28	16° <b>II</b> 53'07	
conjunction	-552 Jun 03 j 09:22	5° <b>II</b> 29'27	-3°-11'-25	opposition	-544 Dec 12 j 14:33	15° <b>II</b> 47'27	0°-7'-59
minimum elong	-552 Jun 03 j 09:27	5° <b>II</b> 29'27	3°11'25	min. Earth dist.	-544 Dec 14 j 22:55	15° <b>II</b> 44'25	39.96549 AU
retrograde	-552 Sep 13 j 08:33	7° <b>II</b> 08'39		direct	-543 Mar 04 j 05:08	14° <b>II</b> 40'28	
opposition	-552 Dec 03 j 03:42	6° <b>II</b> 04'51	-3°-9'-50	asc. node	-543 Apr 14 j 01:12	15° <b>II</b> 00'16	
min. Earth dist.	-552 Dec 05 j 02:23	6° <b>II</b> 02'25	41.77962 AU	max. Earth dist.	-543 Jun 12 j 09:29	16° <b>II</b> 20'49	41.84753 AU
direct	-551 Feb 22 j 19:33	5° <b>II</b> 00'10					



# Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 23

Attention, astronomical year style is used: The year -543 in astronomical counting style is the year 544 BCE in historical counting style.

conjunction	-543 Jun 15 j 01:01	16°II25'02	0°03'57	minimum elong	-535 Jun 26 j 04:19	27°II06'42	3°14'51
minimum elong	-543 Jun 15 j 01:00	16°II25'02	0°03'57	retrograde	-535 Oct 06 j 04:06	28°II57'34	
behind sun begin	-543 Jun 14 j 18:33	16°II24'38		opposition	-535 Dec 24 j 14:33	27°II49'21	3°38'05
behind sun end	-543 Jun 15 j 07:28	16°II25'26		min. Earth dist.	-535 Dec 27 j 06:15	27°II45'45	37.77202 AU
retrograde	-543 Sep 24 j 23:33	18°II09'35		direct	-534 Mar 16 j 03:07	26°II39'16	
opposition	-543 Dec 14 j 02:17	17°II03'39	0°16'03	max. Earth dist.	-534 Jun 24 j 20:21	28°II26'37	39.64174 AU
min. Earth dist.	-543 Dec 16 j 11:23	17°II00'33	39.72737 AU				
direct	-542 Mar 05 j 19:39	15°II56'19		conjunction	-534 Jun 27 j 21:56	28°II31'49	3°39'43
max. Earth dist.	-542 Jun 13 j 22:09	17°II37'20	41.60897 AU	minimum elong	-534 Jun 27 j 21:49	28°II31'49	3°39'43
					-534 Aug 26 j 07:03	0°☾	
conjunction	-542 Jun 16 j 14:52	17°II41'40	0°26'55	retrograde	-534 Oct 07 j 22:34	0°☾23'34	
minimum elong	-542 Jun 16 j 14:51	17°II41'40	0°26'55		-534 Nov 20 j 04:00	30°RII	
retrograde	-542 Sep 26 j 13:21	19°II26'55		opposition	-534 Dec 26 j 06:10	29°II15'00	4°04'27
opposition	-542 Dec 15 j 14:19	18°II20'42	0°40'22	min. Earth dist.	-534 Dec 28 j 23:44	29°II11'17	37.51787 AU
min. Earth dist.	-542 Dec 17 j 23:28	18°II17'35	39.48846 AU	direct	-533 Mar 17 j 16:46	28°II04'31	
direct	-541 Mar 07 j 07:30	17°II13'03		max. Earth dist.	-533 Jun 26 j 14:34	29°II52'50	39.38576 AU
max. Earth dist.	-541 Jun 15 j 11:30	18°II54'47	41.36939 AU				
				conjunction	-533 Jun 29 j 15:58	29°II58'04	4°04'47
conjunction	-541 Jun 18 j 05:15	18°II59'12	0°50'11	minimum elong	-533 Jun 29 j 15:50	29°II58'04	4°04'48
minimum elong	-541 Jun 18 j 05:14	18°II59'12	0°50'12		-533 Jun 30 j 18:57	0°☾	
retrograde	-541 Sep 28 j 02:43	20°II45'11		retrograde	-533 Oct 09 j 17:34	1°☾50'43	
opposition	-541 Dec 17 j 02:50	19°II38'42	1°04'58	opposition	-533 Dec 27 j 22:07	0°☾41'48	4°31'02
min. Earth dist.	-541 Dec 19 j 13:33	19°II35'29	39.24869 AU	min. Earth dist.	-533 Dec 30 j 15:47	0°☾38'03	37.26229 AU
direct	-540 Mar 07 j 18:12	18°II30'44			-532 Jan 29 j 12:43	30°RII	
max. Earth dist.	-540 Jun 16 j 02:18	20°II13'16	41.12899 AU	direct	-532 Mar 18 j 09:21	29°II30'53	
					-532 May 05 j 13:32	0°☾	
conjunction	-540 Jun 18 j 20:00	20°II17'43	1°13'42	max. Earth dist.	-532 Jun 27 j 07:03	1°☾20'05	39.12864 AU
minimum elong	-540 Jun 18 j 19:58	20°II17'43	1°13'42				
retrograde	-540 Sep 28 j 18:52	22°II04'28		conjunction	-532 Jun 30 j 10:17	1°☾25'29	4°30'01
opposition	-540 Dec 17 j 15:40	20°II57'43	1°29'51	minimum elong	-532 Jun 30 j 10:09	1°☾25'28	4°30'01
min. Earth dist.	-540 Dec 20 j 02:13	20°II54'30	39.00796 AU	retrograde	-532 Oct 10 j 13:39	3°☾19'04	
direct	-539 Mar 09 j 05:35	19°II49'26		opposition	-532 Dec 28 j 14:37	2°☾09'47	4°57'48
max. Earth dist.	-539 Jun 17 j 15:15	21°II32'41	40.88718 AU	min. Earth dist.	-532 Dec 31 j 09:15	2°☾05'57	37.00619 AU
				direct	-531 Mar 20 j 00:49	0°☾58'27	
conjunction	-539 Jun 20 j 10:58	21°II37'18	1°37'28	max. Earth dist.	-531 Jun 29 j 02:03	2°☾48'40	38.87102 AU
minimum elong	-539 Jun 20 j 10:55	21°II37'18	1°37'29				
retrograde	-539 Sep 30 j 12:54	23°II24'50		conjunction	-531 Jul 02 j 05:07	2°☾54'07	4°55'25
opposition	-539 Dec 19 j 04:59	22°II17'49	1°54'59	minimum elong	-531 Jul 02 j 04:57	2°☾54'06	4°55'26
min. Earth dist.	-539 Dec 21 j 17:15	22°II14'30	38.76569 AU	retrograde	-531 Oct 12 j 07:00	4°☾48'39	
direct	-538 Mar 10 j 16:31	21°II09'13		opposition	-531 Dec 30 j 07:44	3°☾39'01	5°24'45
max. Earth dist.	-538 Jun 19 j 06:56	22°II53'20	40.64333 AU	min. Earth dist.	-530 Jan 02 j 02:56	3°☾35'08	36.74994 AU
				direct	-530 Mar 21 j 19:22	2°☾27'16	
conjunction	-538 Jun 22 j 02:44	22°II57'59	2°01'29	max. Earth dist.	-530 Jun 30 j 20:39	4°☾18'29	38.61364 AU
minimum elong	-538 Jun 22 j 02:40	22°II57'59	2°01'29				
retrograde	-538 Oct 02 j 03:48	24°II46'20		conjunction	-530 Jul 04 j 00:28	4°☾24'02	5°20'57
opposition	-538 Dec 20 j 18:39	23°II39'02	2°20'23	minimum elong	-530 Jul 04 j 00:18	4°☾24'01	5°20'56
min. Earth dist.	-538 Dec 23 j 07:37	23°II35'40	38.52112 AU	retrograde	-530 Oct 14 j 02:20	6°☾19'34	
direct	-537 Mar 12 j 07:26	22°II30'06		opposition	-529 Jan 01 j 01:09	5°☾09'35	5°51'50
max. Earth dist.	-537 Jun 20 j 21:05	24°II14'57	40.39697 AU	min. Earth dist.	-529 Jan 03 j 20:11	5°☾05'41	36.49431 AU
				direct	-529 Mar 23 j 12:41	3°☾57'25	
conjunction	-537 Jun 23 j 18:51	24°II19'47	2°25'43	max. Earth dist.	-529 Jul 02 j 15:58	5°☾49'41	38.35673 AU
minimum elong	-537 Jun 23 j 18:47	24°II19'47	2°25'44				
retrograde	-537 Oct 03 j 20:16	26°II08'57		conjunction	-529 Jul 05 j 20:31	5°☾55'20	5°46'35
opposition	-537 Dec 22 j 08:51	25°II01'22	2°46'02	minimum elong	-529 Jul 05 j 20:19	5°☾55'19	5°46'36
min. Earth dist.	-537 Dec 24 j 22:47	24°II57'55	38.27404 AU	retrograde	-529 Oct 15 j 21:43	7°☾51'55	
direct	-536 Mar 12 j 22:27	23°II52'04		opposition	-528 Jan 02 j 19:25	6°☾41'35	6°19'04
max. Earth dist.	-536 Jun 21 j 12:39	25°II37'46	40.14771 AU	min. Earth dist.	-528 Jan 05 j 15:47	6°☾37'35	36.23944 AU
				direct	-528 Mar 24 j 03:54	5°☾29'01	
conjunction	-536 Jun 24 j 11:25	25°II42'42	2°50'10	max. Earth dist.	-528 Jul 03 j 12:44	7°☾22'26	38.10065 AU
minimum elong	-536 Jun 24 j 11:19	25°II42'41	2°50'10				
retrograde	-536 Oct 04 j 11:20	27°II32'42		conjunction	-528 Jul 06 j 16:55	7°☾28'07	6°12'19
opposition	-536 Dec 22 j 23:37	26°II24'49	3°11'57	minimum elong	-528 Jul 06 j 16:43	7°☾28'06	6°12'19
min. Earth dist.	-536 Dec 25 j 15:14	26°II21'14	38.02418 AU	retrograde	-528 Oct 16 j 18:38	9°☾25'47	
direct	-535 Mar 14 j 13:03	25°II15'08		opposition	-527 Jan 03 j 14:07	8°☾15'07	6°46'24
max. Earth dist.	-535 Jun 23 j 04:47	27°II01'40	39.89592 AU	min. Earth dist.	-527 Jan 06 j 09:52	8°☾11'08	35.98534 AU
				direct	-527 Mar 25 j 21:56	7°☾02'10	
conjunction	-535 Jun 26 j 04:26	27°II06'42	3°14'51	max. Earth dist.	-527 Jul 05 j 08:15	8°☾56'38	37.84499 AU



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 24

Attention, astronomical year style is used: The year -527 in astronomical counting style is the year 528 BCE in historical counting style.

conjunction	-527 Jul 08 j 14:01	9°02'29	6°38'08	opposition	-518 Jan 18 j 20:31	23°03'14	10°53'18
minimum elong	-527 Jul 08 j 13:47	9°02'28	6°38'09	min. Earth dist.	-518 Jan 21 j 20:53	23°02'54	33.70183 AU
retrograde	-527 Oct 18 j 18:37	11°01'16		direct	-518 Apr 09 j 20:41	22°01'30	
opposition	-526 Jan 05 j 09:23	9°05'16	7°13'49	max. Earth dist.	-518 Jul 21 j 08:30	24°01'40	35.54285 AU
min. Earth dist.	-526 Jan 08 j 06:34	9°04'10	35.73168 AU				
direct	-526 Mar 27 j 14:24	8°03'54		conjunction	-518 Jul 24 j 17:43	24°02'51	10°29'42
max. Earth dist.	-526 Jul 07 j 06:39	10°03'27	37.58934 AU	minimum elong	-518 Jul 24 j 17:23	24°02'51	10°29'42
				retrograde	-518 Nov 04 j 04:19	26°03'45	
conjunction	-526 Jul 10 j 11:55	10°03'29	7°04'00	opposition	-517 Jan 20 j 22:07	25°02'12	11°20'07
minimum elong	-526 Jul 10 j 11:41	10°03'28	7°04'01	min. Earth dist.	-517 Jan 23 j 22:15	25°01'54	33.45505 AU
retrograde	-526 Oct 20 j 17:29	12°03'25		direct	-517 Apr 11 j 22:09	24°02'30	
opposition	-525 Jan 07 j 05:26	11°02'03	7°41'19	max. Earth dist.	-517 Jul 23 j 13:17	26°00'36	35.29483 AU
min. Earth dist.	-525 Jan 10 j 02:50	11°02'25	35.47777 AU				
direct	-525 Mar 29 j 10:47	10°01'16		conjunction	-517 Jul 26 j 21:33	26°01'14	10°54'38
max. Earth dist.	-525 Jul 09 j 03:24	12°01'06	37.33320 AU	minimum elong	-517 Jul 26 j 21:11	26°01'13	10°54'38
				retrograde	-517 Nov 06 j 08:41	28°02'12	
conjunction	-525 Jul 12 j 10:19	12°01'08	7°29'55	opposition	-516 Jan 23 j 00:38	27°01'20	11°46'38
minimum elong	-525 Jul 12 j 10:04	12°01'07	7°29'56	min. Earth dist.	-516 Jan 26 j 00:55	27°00'28	33.21189 AU
retrograde	-525 Oct 22 j 17:59	14°01'13		direct	-516 Apr 13 j 00:42	25°05'52	
opposition	-524 Jan 09 j 02:05	13°05'30	8°08'52	max. Earth dist.	-516 Jul 24 j 18:02	28°02'25	35.05080 AU
min. Earth dist.	-524 Jan 12 j 00:16	13°05'18	35.22347 AU				
direct	-524 Mar 30 j 06:32	11°05'16		conjunction	-516 Jul 28 j 02:01	28°00'06	11°19'13
max. Earth dist.	-524 Jul 10 j 02:22	13°04'20	37.07634 AU	minimum elong	-516 Jul 28 j 01:39	28°00'04	11°19'14
					-516 Oct 01 j 03:41	0°00'	
conjunction	-524 Jul 13 j 09:32	13°05'27	7°55'50	retrograde	-516 Nov 07 j 14:48	0°02'12	
minimum elong	-524 Jul 13 j 09:17	13°05'25	7°55'50		-516 Dec 15 j 15:31	30°00'	
retrograde	-524 Oct 23 j 16:32	15°05'41		opposition	-515 Jan 24 j 03:46	29°05'52	12°12'46
opposition	-523 Jan 09 j 23:34	14°04'35	8°36'26	min. Earth dist.	-515 Jan 27 j 02:53	29°01'20	32.97284 AU
min. Earth dist.	-523 Jan 12 j 22:46	14°04'17	34.96857 AU	direct	-515 Apr 15 j 03:13	27°04'14	
direct	-523 Apr 01 j 05:10	13°03'04		max. Earth dist.	-515 Jul 26 j 23:25	29°05'15	34.81057 AU
max. Earth dist.	-523 Jul 12 j 01:17	15°03'08	36.81908 AU		-515 Jul 28 j 08:00	0°00'	
conjunction	-523 Jul 15 j 09:09	15°03'22	8°21'44	conjunction	-515 Jul 30 j 07:18	0°00'40	11°43'25
minimum elong	-523 Jul 15 j 08:52	15°03'21	8°21'45	minimum elong	-515 Jul 30 j 06:55	0°00'38	11°43'25
retrograde	-523 Oct 25 j 17:31	17°03'47		retrograde	-515 Nov 09 j 19:39	2°01'43	
opposition	-522 Jan 11 j 21:33	16°02'16	9°03'59	opposition	-514 Jan 26 j 07:54	1°01'46	12°38'29
min. Earth dist.	-522 Jan 14 j 20:32	16°02'25	34.71346 AU	min. Earth dist.	-514 Jan 29 j 07:45	0°01'57	32.73753 AU
direct	-522 Apr 03 j 02:59	15°01'20			-514 Mar 13 j 10:22	30°00'	
max. Earth dist.	-522 Jul 14 j 00:45	17°01'23	36.56149 AU	direct	-514 Apr 17 j 04:49	29°04'23	
					-514 May 21 j 10:45	0°00'	
conjunction	-522 Jul 17 j 09:39	17°01'54	8°47'36	max. Earth dist.	-514 Jul 29 j 06:44	1°01'54	34.57399 AU
minimum elong	-522 Jul 17 j 09:22	17°01'53	8°47'36				
retrograde	-522 Oct 27 j 16:23	19°02'31		conjunction	-514 Aug 01 j 13:29	2°01'01	12°07'10
opposition	-521 Jan 13 j 20:14	18°01'34	9°31'30	minimum elong	-514 Aug 01 j 13:06	2°00'59	12°07'11
min. Earth dist.	-521 Jan 16 j 20:47	18°00'08	34.45848 AU	retrograde	-514 Nov 12 j 02:23	4°01'60	
direct	-521 Apr 04 j 23:28	16°05'45		opposition	-513 Jan 28 j 12:44	2°05'50	13°03'43
max. Earth dist.	-521 Jul 16 j 02:21	18°05'38	36.30437 AU	min. Earth dist.	-513 Jan 31 j 11:28	2°05'51	32.50567 AU
				direct	-513 Apr 19 j 08:09	1°04'02	
conjunction	-521 Jul 19 j 10:46	19°03'02	9°13'22	max. Earth dist.	-513 Jul 31 j 13:05	3°05'32	34.34062 AU
minimum elong	-521 Jul 19 j 10:27	19°03'01	9°13'22				
retrograde	-521 Oct 29 j 16:55	21°08'52		conjunction	-513 Aug 03 j 20:29	4°00'12	12°30'26
opposition	-520 Jan 15 j 19:38	19°05'29	9°58'56	minimum elong	-513 Aug 03 j 20:05	4°00'10	12°30'26
min. Earth dist.	-520 Jan 18 j 19:34	19°05'10	34.20434 AU	retrograde	-513 Nov 14 j 10:44	6°01'46	
direct	-520 Apr 05 j 22:34	18°03'19		opposition	-512 Jan 30 j 18:41	5°00'04	13°28'25
max. Earth dist.	-520 Jul 17 j 02:37	20°04'21	36.04831 AU	min. Earth dist.	-512 Feb 02 j 18:06	4°05'52	32.27710 AU
				direct	-512 Apr 20 j 10:22	3°04'08	
conjunction	-520 Jul 20 j 12:18	20°04'47	9°39'01	max. Earth dist.	-512 Aug 01 j 22:18	5°05'46	34.11042 AU
minimum elong	-520 Jul 20 j 11:59	20°04'46	9°39'01				
retrograde	-520 Oct 30 j 20:09	22°05'52		conjunction	-512 Aug 05 j 04:13	6°01'33	12°53'09
opposition	-519 Jan 16 j 19:46	21°04'20	10°26'13	minimum elong	-512 Aug 05 j 03:50	6°01'31	12°53'09
min. Earth dist.	-519 Jan 19 j 20:34	21°03'70	33.95190 AU	retrograde	-512 Nov 15 j 19:08	8°01'93	
direct	-519 Apr 07 j 19:57	20°02'51		opposition	-511 Feb 01 j 01:29	7°02'27	13°52'32
max. Earth dist.	-519 Jul 19 j 06:11	22°02'40	35.79419 AU	min. Earth dist.	-511 Feb 04 j 00:04	6°05'51	32.05160 AU
				direct	-511 Apr 22 j 17:09	5°04'20	
conjunction	-519 Jul 22 j 14:42	22°03'11	10°04'28	max. Earth dist.	-511 Aug 04 j 06:08	7°05'08	33.88346 AU
minimum elong	-519 Jul 22 j 14:22	22°03'10	10°04'28				
retrograde	-519 Nov 01 j 22:25	24°04'31		conjunction	-511 Aug 07 j 12:48	8°05'02	13°15'15



# Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 25

Attention, astronomical year style is used: The year -511 in astronomical counting style is the year 512 BCE in historical counting style.

minimum elong	-511 Aug 07 j 12:23	8°005'00	13°15'15	minimum elong	-503 Aug 25 j 12:28	25°045'30	15°40'55
retrograde	-511 Nov 18 j 06:37	10°024'28		retrograde	-503 Dec 06 j 12:51	28°015'48	
opposition	-510 Feb 03 j 08:57	9°006'57	14°16'00	opposition	-502 Feb 21 j 05:34	26°055'09	16°49'19
min. Earth dist.	-510 Feb 06 j 07:27	9°002'20	31.82954 AU	min. Earth dist.	-502 Feb 23 j 19:00	26°050'56	30.24782 AU
direct	-510 Apr 24 j 23:38	7°046'07		direct	-502 May 12 j 11:51	25°031'00	
max. Earth dist.	-510 Aug 06 j 17:09	10°003'47	33.65997 AU	max. Earth dist.	-502 Aug 25 j 09:47	28°000'42	32.08272 AU
conjunction	-510 Aug 09 j 22:23	10°010'38	13°36'41	conjunction	-502 Aug 28 j 04:06	28°007'02	15°53'57
minimum elong	-510 Aug 09 j 22:00	10°010'36	13°36'42	minimum elong	-502 Aug 28 j 03:49	28°007'00	15°53'57
retrograde	-510 Nov 20 j 16:03	12°031'28			-502 Oct 22 j 13:04	0°00	
opposition	-509 Feb 05 j 17:34	11°013'32	14°38'43	retrograde	-502 Dec 09 j 06:27	0°0038'33	
min. Earth dist.	-509 Feb 08 j 15:52	11°008'54	31.61108 AU		-501 Jan 27 j 21:26	30°00	
direct	-509 Apr 27 j 07:33	9°052'14		opposition	-501 Feb 23 j 21:05	29°017'37	17°02'47
max. Earth dist.	-509 Aug 09 j 03:21	12°011'22	33.44059 AU	min. Earth dist.	-501 Feb 26 j 09:00	29°013'29	30.08345 AU
conjunction	-509 Aug 12 j 08:26	12°018'16	13°57'23	direct	-501 May 15 j 01:18	27°053'10	
minimum elong	-509 Aug 12 j 08:01	12°018'14	13°57'23		-501 Aug 17 j 12:49	0°00	
retrograde	-509 Nov 23 j 05:04	14°040'29		max. Earth dist.	-501 Aug 28 j 04:49	0°0024'24	31.92009 AU
opposition	-508 Feb 08 j 02:54	13°022'08	15°00'36	conjunction	-501 Aug 30 j 20:10	0°0030'30	16°05'35
min. Earth dist.	-508 Feb 11 j 00:01	13°017'33	31.39707 AU	minimum elong	-501 Aug 30 j 19:53	0°0030'28	16°05'35
direct	-508 Apr 28 j 17:07	12°000'23		retrograde	-501 Dec 11 j 22:52	3°003'14	
max. Earth dist.	-508 Aug 10 j 15:35	14°021'04	33.22590 AU	opposition	-500 Feb 26 j 13:37	1°0042'01	17°14'44
conjunction	-508 Aug 13 j 19:26	14°027'55	14°17'14	min. Earth dist.	-500 Feb 29 j 00:11	1°0037'58	29.92664 AU
minimum elong	-508 Aug 13 j 19:03	14°027'53	14°17'14	direct	-500 May 16 j 16:16	0°0017'17	
	-508 Aug 28 j 16:27	15°00		max. Earth dist.	-500 Aug 29 j 22:40	2°0049'49	31.76533 AU
retrograde	-508 Nov 24 j 17:01	16°051'31		conjunction	-500 Sep 01 j 12:50	2°0055'50	16°15'44
opposition	-507 Feb 09 j 13:12	15°032'44	15°21'35	minimum elong	-500 Sep 01 j 12:37	2°0055'49	16°15'45
min. Earth dist.	-507 Feb 12 j 10:21	15°028'07	31.18816 AU	retrograde	-500 Dec 13 j 18:32	5°0029'44	
	-507 Mar 02 j 12:18	15°00		opposition	-499 Feb 28 j 06:43	4°0008'14	17°25'05
direct	-507 May 01 j 02:42	14°010'31		min. Earth dist.	-499 Mar 02 j 15:08	4°0004'19	29.77747 AU
	-507 Jun 27 j 11:33	15°00		direct	-499 May 19 j 09:22	2°0043'15	
max. Earth dist.	-507 Aug 13 j 04:25	16°032'43	33.01695 AU	max. Earth dist.	-499 Sep 01 j 18:42	5°0017'08	31.61824 AU
conjunction	-507 Aug 16 j 06:57	16°039'31	14°36'10	conjunction	-499 Sep 04 j 06:20	5°0022'57	16°24'23
minimum elong	-507 Aug 16 j 06:34	16°039'29	14°36'11	minimum elong	-499 Sep 04 j 06:06	5°0022'55	16°24'23
retrograde	-507 Nov 27 j 05:53	19°004'29		retrograde	-499 Dec 16 j 12:27	7°0057'56	
opposition	-506 Feb 12 j 00:14	17°045'17	15°41'33	opposition	-498 Mar 03 j 00:51	6°0036'09	17°33'46
min. Earth dist.	-506 Feb 14 j 19:17	17°040'46	30.98522 AU	min. Earth dist.	-498 Mar 05 j 08:23	6°0032'18	29.63568 AU
direct	-506 May 03 j 13:46	16°022'37		direct	-498 May 22 j 02:52	5°0010'56	
max. Earth dist.	-506 Aug 15 j 17:46	18°046'18	32.81433 AU	max. Earth dist.	-498 Sep 04 j 14:22	7°0045'59	31.47905 AU
conjunction	-506 Aug 18 j 19:20	18°053'05	14°54'06	conjunction	-498 Sep 07 j 00:16	7°0051'40	16°31'26
minimum elong	-506 Aug 18 j 18:59	18°053'03	14°54'06	minimum elong	-498 Sep 07 j 00:06	7°0051'39	16°31'26
retrograde	-506 Nov 29 j 17:47	21°019'23		retrograde	-498 Dec 19 j 08:36	10°0027'40	
opposition	-505 Feb 14 j 12:18	19°059'47	16°00'24	opposition	-497 Mar 05 j 19:32	9°0005'38	17°40'44
min. Earth dist.	-505 Feb 17 j 07:04	19°055'16	30.78910 AU	min. Earth dist.	-497 Mar 08 j 00:14	9°0001'58	29.50161 AU
direct	-505 May 05 j 23:26	18°036'41		direct	-497 May 24 j 21:52	7°0040'10	
max. Earth dist.	-505 Aug 18 j 09:26	21°001'58	32.61921 AU	max. Earth dist.	-497 Sep 07 j 11:07	10°0016'23	31.34793 AU
conjunction	-505 Aug 21 j 08:27	21°008'35	15°10'56	conjunction	-497 Sep 09 j 18:50	10°0021'53	16°36'50
minimum elong	-505 Aug 21 j 08:05	21°008'33	15°10'56	minimum elong	-497 Sep 09 j 18:40	10°0021'52	16°36'50
retrograde	-505 Dec 02 j 07:44	23°036'13		retrograde	-497 Dec 22 j 03:54	12°0058'48	
opposition	-504 Feb 17 j 01:14	22°016'14	16°18'03	opposition	-496 Mar 07 j 15:05	11°0036'30	17°45'53
min. Earth dist.	-504 Feb 19 j 17:32	22°011'52	30.60059 AU	min. Earth dist.	-496 Mar 09 j 18:46	11°0032'53	29.37564 AU
direct	-504 May 07 j 11:08	20°052'45		direct	-496 May 26 j 15:56	10°0010'49	
max. Earth dist.	-504 Aug 20 j 00:02	23°019'29	32.43207 AU	max. Earth dist.	-496 Sep 09 j 08:40	12°0048'07	31.22558 AU
conjunction	-504 Aug 22 j 22:07	23°026'03	15°26'34	conjunction	-496 Sep 11 j 13:37	12°0053'23	16°40'31
minimum elong	-504 Aug 22 j 21:48	23°026'02	15°26'34	minimum elong	-496 Sep 11 j 13:31	12°0053'22	16°40'31
retrograde	-504 Dec 03 j 22:28	25°055'01		retrograde	-496 Dec 24 j 00:43	15°0031'08	
opposition	-503 Feb 18 j 15:02	24°034'42	16°34'22	opposition	-495 Mar 10 j 11:01	14°0008'36	17°49'10
min. Earth dist.	-503 Feb 21 j 06:28	24°030'21	30.42020 AU	min. Earth dist.	-495 Mar 12 j 11:32	14°0005'12	29.25824 AU
direct	-503 May 09 j 21:32	23°010'51		direct	-495 May 29 j 12:30	12°0042'43	
max. Earth dist.	-503 Aug 22 j 17:40	25°039'11	32.25329 AU	max. Earth dist.	-495 Sep 12 j 06:01	15°0020'57	31.11235 AU
conjunction	-503 Aug 25 j 12:48	25°045'32	15°40'56	conjunction	-495 Sep 14 j 08:55	15°0026'02	16°42'26



# Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 26

Attention, astronomical year style is used: The year -495 in astronomical counting style is the year 496 BCE in historical counting style.

minimum elong	-495 Sep 14 j 08:50	15° $\overline{17}$ 26'01	16°42'26	minimum elong	-487 Oct 05 j 01:50	6° $\underline{13}$ '15	15°49'06
retrograde	-495 Dec 26 j 19:36	18° $\overline{17}$ 04'32		retrograde	-486 Jan 16 j 16:54	8° $\underline{15}$ '43'31	
opposition	-494 Mar 13 j 07:28	16° $\overline{17}$ 41'46	17°50'31	opposition	-486 Apr 03 j 16:45	7° $\underline{15}$ '31'08	16°46'42
min. Earth dist.	-494 Mar 15 j 06:34	16° $\overline{17}$ 38'27	29.15018 AU	min. Earth dist.	-486 Apr 04 j 14:59	7° $\underline{15}$ '29'34	28.68090 AU
direct	-494 Jun 01 j 07:15	15° $\overline{17}$ 15'42		direct	-486 Jun 22 j 11:37	6° $\underline{15}$ '05'06	
max. Earth dist.	-494 Sep 15 j 05:22	17° $\overline{17}$ 54'56	31.00924 AU				
conjunction	-494 Sep 17 j 04:31	17° $\overline{17}$ 59'40	16°42'31	conjunction	-486 Oct 07 j 21:57	8° $\underline{15}$ '50'24	15°33'52
minimum elong	-494 Sep 17 j 04:30	17° $\overline{17}$ 59'39	16°42'30	minimum elong	-486 Oct 07 j 22:13	8° $\underline{15}$ '50'25	15°33'51
retrograde	-494 Dec 29 j 15:28	20° $\overline{17}$ 38'49		max. Earth dist.	-486 Oct 07 j 00:41	8° $\underline{15}$ '48'14	30.59598 AU
opposition	-493 Mar 16 j 04:32	19° $\overline{17}$ 15'52	17°49'51	retrograde	-485 Jan 19 j 13:18	11° $\underline{15}$ '31'35	
min. Earth dist.	-493 Mar 18 j 00:14	19° $\overline{17}$ 12'46	29.05219 AU	opposition	-485 Apr 06 j 15:50	10° $\underline{15}$ '08'13	16°29'31
direct	-493 Jun 04 j 04:43	17° $\overline{17}$ 49'38		min. Earth dist.	-485 Apr 07 j 12:03	10° $\underline{15}$ '06'48	28.67087 AU
max. Earth dist.	-493 Sep 18 j 03:13	20° $\overline{17}$ 29'37	30.91693 AU	direct	-485 Jun 25 j 10:18	8° $\underline{15}$ '42'19	
conjunction	-493 Sep 20 j 00:10	20° $\overline{17}$ 34'09	16°40'42	conjunction	-485 Oct 10 j 17:52	11° $\underline{15}$ '27'14	15°16'51
minimum elong	-493 Sep 20 j 00:09	20° $\overline{17}$ 34'09	16°40'43	minimum elong	-485 Oct 10 j 18:09	11° $\underline{15}$ '27'15	15°16'51
retrograde	-492 Jan 01 j 12:23	23° $\overline{17}$ 13'53		max. Earth dist.	-485 Oct 09 j 23:35	11° $\underline{15}$ '25'22	30.59392 AU
opposition	-492 Mar 18 j 02:04	21° $\overline{17}$ 50'45	17°47'07	retrograde	-484 Jan 22 j 10:58	14° $\underline{15}$ '08'10	
min. Earth dist.	-492 Mar 19 j 19:14	21° $\overline{17}$ 47'51	28.96522 AU	opposition	-484 Apr 08 j 14:37	12° $\underline{15}$ '44'50	16°10'25
direct	-492 Jun 05 j 23:36	20° $\overline{17}$ 24'26		min. Earth dist.	-484 Apr 09 j 06:49	12° $\underline{15}$ '43'42	28.67093 AU
max. Earth dist.	-492 Sep 20 j 03:36	23° $\overline{17}$ 05'17	30.83627 AU	direct	-484 Jun 27 j 11:16	11° $\underline{15}$ '19'04	
conjunction	-492 Sep 21 j 20:13	23° $\overline{17}$ 09'23	16°36'58	conjunction	-484 Oct 12 j 13:41	14° $\underline{15}$ '03'29	14°58'05
minimum elong	-492 Sep 21 j 20:17	23° $\overline{17}$ 09'23	16°36'57	minimum elong	-484 Oct 12 j 14:00	14° $\underline{15}$ '03'31	14°58'05
retrograde	-491 Jan 03 j 07:33	25° $\overline{17}$ 49'37		max. Earth dist.	-484 Oct 11 j 22:34	14° $\underline{15}$ '01'57	30.60213 AU
opposition	-491 Mar 20 j 23:48	24° $\overline{17}$ 26'22	17°42'17	retrograde	-483 Jan 24 j 06:19	16° $\underline{15}$ '44'05	
min. Earth dist.	-491 Mar 22 j 13:44	24° $\overline{17}$ 23'41	28.88960 AU	opposition	-483 Apr 11 j 13:09	15° $\underline{15}$ '20'47	15°49'29
direct	-491 Jun 08 j 21:32	23° $\overline{17}$ 00'00		min. Earth dist.	-483 Apr 12 j 03:13	15° $\underline{15}$ '19'48	28.68123 AU
max. Earth dist.	-491 Sep 23 j 01:55	25° $\overline{17}$ 41'24	30.76756 AU	direct	-483 Jun 30 j 09:24	13° $\underline{15}$ '55'09	
conjunction	-491 Sep 24 j 16:21	25° $\overline{17}$ 45'17	16°31'16	conjunction	-483 Oct 15 j 09:08	16° $\underline{15}$ '38'57	14°37'39
minimum elong	-491 Sep 24 j 16:25	25° $\overline{17}$ 45'18	16°31'16	minimum elong	-483 Oct 15 j 09:29	16° $\underline{15}$ '38'59	14°37'39
retrograde	-490 Jan 06 j 04:47	28° $\overline{17}$ 25'56		max. Earth dist.	-483 Oct 14 j 21:35	16° $\underline{15}$ '37'47	30.62094 AU
opposition	-490 Mar 23 j 21:56	27° $\overline{17}$ 02'36	17°35'20	retrograde	-482 Jan 27 j 02:03	19° $\underline{15}$ '19'05	
min. Earth dist.	-490 Mar 25 j 08:39	27° $\overline{17}$ 00'09	28.82570 AU	opposition	-482 Apr 14 j 11:28	17° $\underline{15}$ '55'51	15°26'45
direct	-490 Jun 11 j 18:11	25° $\overline{17}$ 36'14		min. Earth dist.	-482 Apr 14 j 21:37	17° $\underline{15}$ '55'08	28.70188 AU
max. Earth dist.	-490 Sep 26 j 02:46	28° $\overline{17}$ 18'20	30.71073 AU	direct	-482 Jul 03 j 09:41	16° $\underline{15}$ '30'22	
conjunction	-490 Sep 27 j 12:40	28° $\overline{17}$ 21'47	16°23'37	conjunction	-482 Oct 18 j 03:58	19° $\underline{15}$ '13'27	14°15'35
minimum elong	-490 Sep 27 j 12:48	28° $\overline{17}$ 21'47	16°23'36	minimum elong	-482 Oct 18 j 04:19	19° $\underline{15}$ '13'29	14°15'34
retrograde	-489 Jan 09 j 00:52	1° $\underline{15}$ '02'44		max. Earth dist.	-482 Oct 17 j 19:16	19° $\underline{15}$ '12'34	30.65046 AU
opposition	-489 Mar 14 j 12:59	30° $\overline{15}$ ' $\overline{17}$		retrograde	-481 Jan 29 j 21:51	21° $\underline{15}$ '53'02	
min. Earth dist.	-489 Mar 26 j 20:28	29° $\overline{15}$ '39'22	17°26'17	opposition	-481 Apr 17 j 09:33	20° $\underline{15}$ '29'51	15°02'17
direct	-489 Jun 14 j 15:27	28° $\overline{15}$ '13'03	28.77313 AU	min. Earth dist.	-481 Apr 17 j 16:44	20° $\underline{15}$ '29'21	28.73355 AU
max. Earth dist.	-489 Sep 05 j 17:41	0° $\underline{15}$ '		direct	-481 Jul 06 j 07:44	19° $\underline{15}$ '04'33	
conjunction	-489 Sep 30 j 08:57	0° $\underline{15}$ '58'42	16°14'01	conjunction	-481 Oct 20 j 22:26	21° $\underline{15}$ '46'48	13°51'56
minimum elong	-489 Sep 30 j 09:06	0° $\underline{15}$ '58'43	16°14'01	minimum elong	-481 Oct 20 j 22:49	21° $\underline{15}$ '46'51	13°51'57
retrograde	-488 Jan 11 j 22:53	3° $\underline{15}$ '39'54		max. Earth dist.	-481 Oct 20 j 18:04	21° $\underline{15}$ '46'22	30.69144 AU
opposition	-488 Mar 28 j 19:06	2° $\underline{15}$ '16'30	17°15'07	retrograde	-480 Feb 01 j 14:49	24° $\underline{15}$ '25'46	
min. Earth dist.	-488 Mar 29 j 23:27	2° $\underline{15}$ '14'30	28.73182 AU	opposition	-480 Apr 19 j 07:09	23° $\underline{15}$ '02'41	14°36'09
direct	-488 Jun 16 j 13:30	0° $\underline{15}$ '50'15		min. Earth dist.	-480 Apr 19 j 10:40	23° $\underline{15}$ '02'26	28.77663 AU
max. Earth dist.	-488 Oct 01 j 02:00	3° $\underline{15}$ '33'08	30.63162 AU	direct	-480 Jul 08 j 07:01	21° $\underline{15}$ '37'36	
conjunction	-488 Oct 02 j 05:19	3° $\underline{15}$ '35'55	16°02'30	conjunction	-480 Oct 22 j 16:12	24° $\underline{15}$ '18'56	13°26'49
minimum elong	-488 Oct 02 j 05:32	3° $\underline{15}$ '35'56	16°02'29	minimum elong	-480 Oct 22 j 16:35	24° $\underline{15}$ '18'59	13°26'48
retrograde	-487 Jan 13 j 19:00	6° $\underline{15}$ '17'13		max. Earth dist.	-480 Oct 22 j 14:31	24° $\underline{15}$ '18'46	30.74421 AU
opposition	-487 Mar 31 j 18:00	4° $\underline{15}$ '53'49	17°01'55	retrograde	-479 Feb 03 j 08:49	26° $\underline{15}$ '57'13	
min. Earth dist.	-487 Apr 01 j 20:12	4° $\underline{15}$ '51'59	28.70115 AU	opposition	-479 Apr 22 j 04:17	25° $\underline{15}$ '34'15	14°08'27
direct	-487 Jun 19 j 12:36	3° $\underline{15}$ '27'41		min. Earth dist.	-479 Apr 22 j 04:02	25° $\underline{15}$ '34'16	28.83170 AU
max. Earth dist.	-487 Oct 04 j 00:43	6° $\underline{15}$ '10'41	30.60856 AU	direct	-479 Jul 11 j 03:33	24° $\underline{15}$ '09'25	
conjunction	-487 Oct 05 j 01:37	6° $\underline{15}$ '13'13	15°49'06	conjunction	-479 Oct 25 j 09:38	26° $\underline{15}$ '49'49	13°00'16
				minimum elong	-479 Oct 25 j 10:02	26° $\underline{15}$ '49'52	13°00'15
				max. Earth dist.	-479 Oct 25 j 12:38	26° $\underline{15}$ '50'07	30.80908 AU
				retrograde	-478 Feb 06 j 00:46	29° $\underline{15}$ '27'21	
				opposition	-478 Apr 25 j 00:58	28° $\underline{15}$ '04'34	13°39'16



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 27

Attention, astronomical year style is used: The year -478 in astronomical counting style is the year 479 BCE in historical counting style.

min. Earth dist.	-478 Apr 24 j 21:37	28°♂04'47	28.89863 AU	max. Earth dist.	-471 Nov 14 j 09:29	16°♂09'16	31.70865 AU
direct	-478 Jul 14 j 00:44	26°♂40'02		retrograde	-470 Feb 25 j 00:25	18°♂36'36	
				min. Earth dist.	-470 May 13 j 21:48	17°♂17'45	29.80626 AU
conjunction	-478 Oct 28 j 02:23	29°♂19'25	12°32'23	opposition	-470 May 15 j 01:51	17°♂15'54	9°06'20
minimum elong	-478 Oct 28 j 02:46	29°♂19'27	12°32'22	direct	-470 Aug 03 j 04:59	15°♂54'23	
max. Earth dist.	-478 Oct 28 j 07:55	29°♂19'58	30.88594 AU				
	-478 Nov 14 j 07:45	0°♂		conjunction	-470 Nov 15 j 18:35	18°♂23'58	8°14'39
retrograde	-477 Feb 08 j 18:22	1°♂56'09		minimum elong	-470 Nov 15 j 18:54	18°♂24'00	8°14'38
opposition	-477 Apr 27 j 21:09	0°♂33'35	13°08'42	max. Earth dist.	-470 Nov 17 j 00:36	18°♂26'48	31.86003 AU
min. Earth dist.	-477 Apr 27 j 13:27	0°♂34'07	28.97744 AU	retrograde	-469 Feb 27 j 11:00	20°♂52'39	
	-477 May 18 j 20:28	30°♂		min. Earth dist.	-469 May 16 j 10:23	19°♂34'14	29.95832 AU
direct	-477 Jul 16 j 20:20	29°♂09'23		opposition	-469 May 17 j 16:55	19°♂32'13	8°29'01
	-477 Sep 10 j 16:20	0°♂		direct	-469 Aug 05 j 22:42	18°♂11'05	
conjunction	-477 Oct 30 j 18:34	1°♂47'42	12°03'18	conjunction	-469 Nov 18 j 05:14	20°♂39'14	7°39'38
minimum elong	-477 Oct 30 j 18:59	1°♂47'45	12°03'18	minimum elong	-469 Nov 18 j 05:33	20°♂39'16	7°39'38
max. Earth dist.	-477 Oct 31 j 04:39	1°♂48'42	30.97432 AU	max. Earth dist.	-469 Nov 19 j 13:06	20°♂42'14	32.01927 AU
retrograde	-476 Feb 11 j 08:58	4°♂23'37		retrograde	-468 Feb 29 j 21:27	23°♂06'45	
opposition	-476 Apr 29 j 16:54	3°♂01'17	12°36'53	min. Earth dist.	-468 May 17 j 21:15	21°♂48'49	30.11874 AU
min. Earth dist.	-476 Apr 29 j 06:45	3°♂01'59	29.06740 AU	opposition	-468 May 19 j 07:10	21°♂46'35	7°51'20
direct	-476 Jul 18 j 16:14	1°♂37'28		direct	-468 Aug 07 j 12:58	20°♂25'49	
conjunction	-476 Nov 01 j 10:11	4°♂14'40	11°33'05	conjunction	-468 Nov 19 j 15:23	22°♂52'34	7°04'17
minimum elong	-476 Nov 01 j 10:34	4°♂14'42	11°33'05	minimum elong	-468 Nov 19 j 15:40	22°♂52'36	7°04'16
max. Earth dist.	-476 Nov 01 j 22:34	4°♂15'53	31.07361 AU	max. Earth dist.	-468 Nov 21 j 03:03	22°♂55'54	32.18673 AU
retrograde	-475 Feb 13 j 01:36	6°♂49'41		retrograde	-467 Mar 03 j 04:37	25°♂18'53	
opposition	-475 May 02 j 11:45	5°♂27'37	12°03'56	min. Earth dist.	-467 May 20 j 08:37	24°♂01'21	30.28761 AU
min. Earth dist.	-475 May 01 j 21:25	5°♂28'35	29.16792 AU	opposition	-467 May 21 j 20:31	23°♂59'00	7°13'21
direct	-475 Jul 21 j 10:49	4°♂04'10		direct	-467 Aug 10 j 04:02	22°♂38'37	
conjunction	-475 Nov 04 j 01:17	6°♂40'13	11°01'53	conjunction	-467 Nov 22 j 00:39	25°♂03'59	6°28'42
minimum elong	-475 Nov 04 j 01:42	6°♂40'15	11°01'54	minimum elong	-467 Nov 22 j 00:55	25°♂04'00	6°28'42
max. Earth dist.	-475 Nov 04 j 17:29	6°♂41'48	31.18295 AU	max. Earth dist.	-467 Nov 23 j 14:01	25°♂07'26	32.36263 AU
retrograde	-474 Feb 15 j 16:05	9°♂14'18		retrograde	-466 Mar 05 j 14:31	27°♂29'06	
opposition	-474 May 05 j 06:22	7°♂52'31	11°29'58	min. Earth dist.	-466 May 22 j 17:23	26°♂12'07	30.46519 AU
min. Earth dist.	-474 May 04 j 14:06	7°♂53'37	29.27827 AU	opposition	-466 May 24 j 09:11	26°♂09'32	6°35'11
direct	-474 Jul 24 j 04:43	6°♂29'28		direct	-466 Aug 12 j 16:34	24°♂49'33	
conjunction	-474 Nov 06 j 15:37	9°♂04'18	10°29'48	conjunction	-466 Nov 24 j 09:11	27°♂13'31	5°52'58
minimum elong	-474 Nov 06 j 15:59	9°♂04'20	10°29'47	minimum elong	-466 Nov 24 j 09:25	27°♂13'32	5°52'57
max. Earth dist.	-474 Nov 07 j 10:22	9°♂06'07	31.30179 AU	max. Earth dist.	-466 Nov 26 j 02:07	27°♂17'16	32.54683 AU
retrograde	-473 Feb 18 j 07:50	11°♂37'24		retrograde	-465 Mar 07 j 21:21	29°♂37'29	
min. Earth dist.	-473 May 07 j 04:04	10°♂17'14	29.39777 AU	min. Earth dist.	-465 May 25 j 03:47	28°♂20'54	30.65115 AU
opposition	-473 May 08 j 00:17	10°♂15'53	10°55'06	opposition	-465 May 26 j 21:16	28°♂18'13	5°56'54
direct	-473 Jul 27 j 00:45	8°♂53'14		direct	-465 Aug 15 j 04:37	26°♂58'40	
conjunction	-473 Nov 09 j 05:26	11°♂26'49	9°56'56	conjunction	-465 Nov 26 j 17:05	29°♂21'15	5°17'08
minimum elong	-473 Nov 09 j 05:48	11°♂26'51	9°56'56	minimum elong	-465 Nov 26 j 17:18	29°♂21'17	5°17'08
max. Earth dist.	-473 Nov 10 j 03:10	11°♂28'54	31.42929 AU	max. Earth dist.	-465 Nov 28 j 11:57	29°♂25'10	32.73906 AU
retrograde	-472 Feb 20 j 22:19	13°♂58'53			-465 Dec 14 j 16:37	0°♂	
opposition	-472 May 09 j 17:32	12°♂37'38	10°19'29	retrograde	-464 Mar 09 j 05:42	1°♂44'03	
min. Earth dist.	-472 May 08 j 19:17	12°♂39'08	29.52595 AU	min. Earth dist.	-464 May 26 j 11:20	0°♂28'01	30.84493 AU
direct	-472 Jul 28 j 17:44	11°♂15'22		opposition	-464 May 28 j 08:16	0°♂25'09	5°18'35
					-464 Jun 13 j 23:46	30°♂	
conjunction	-472 Nov 10 j 18:34	13°♂47'40	9°23'23	direct	-464 Aug 16 j 15:53	29°♂06'02	
minimum elong	-472 Nov 10 j 18:55	13°♂47'42	9°23'23		-464 Oct 15 j 11:51	0°♂	
max. Earth dist.	-472 Nov 11 j 19:06	13°♂50'01	31.56513 AU				
	-472 Dec 13 j 13:30	15°♂		conjunction	-464 Nov 28 j 00:16	1°♂27'16	4°41'18
retrograde	-471 Feb 22 j 10:57	16°♂18'38		minimum elong	-464 Nov 28 j 00:27	1°♂27'17	4°41'18
	-471 May 10 j 23:11	15°♂		max. Earth dist.	-464 Nov 29 j 21:47	1°♂31'22	32.93841 AU
min. Earth dist.	-471 May 11 j 08:31	14°♂59'23	29.66211 AU	retrograde	-463 Mar 11 j 13:39	3°♂48'54	
opposition	-471 May 12 j 10:01	14°♂57'41	9°43'11	min. Earth dist.	-463 May 28 j 20:11	2°♂33'19	31.04582 AU
direct	-471 Jul 31 j 12:15	13°♂35'48		opposition	-463 May 30 j 18:47	2°♂30'21	4°40'21
	-471 Oct 13 j 23:43	15°♂		direct	-463 Aug 19 j 00:42	1°♂11'41	
conjunction	-471 Nov 13 j 06:53	16°♂06'45	8°49'16	conjunction	-463 Nov 30 j 06:46	3°♂31'35	4°05'32
minimum elong	-471 Nov 13 j 07:14	16°♂06'47	8°49'16	minimum elong	-463 Nov 30 j 06:56	3°♂31'36	4°05'32



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 28

Attention, astronomical year style is used: The year -463 in astronomical counting style is the year 464 BCE in historical counting style.

max. Earth dist.	-463 Dec 02 j 06:37	3°♂35'52	33.14424 AU	max. Earth dist.	-455 Dec 18 j 00:21	19°♂10'57	34.94063 AU
retrograde	-462 Mar 13 j 20:08	5°♂52'04		retrograde	-454 Mar 29 j 01:45	21°♂17'23	
min. Earth dist.	-462 May 31 j 03:20	4°♂36'59	31.25282 AU	min. Earth dist.	-454 Jun 15 j 18:26	20°♂05'34	33.05982 AU
opposition	-462 Jun 02 j 04:29	4°♂33'53	4°02'14	opposition	-454 Jun 18 j 08:51	20°♂01'48	0°-50'-37
direct	-462 Aug 21 j 12:24	3°♂15'40		direct	-454 Sep 06 j 19:33	18°♂46'45	
conjunction	-462 Dec 02 j 12:36	5°♂34'14	3°29'55	conjunction	-454 Dec 17 j 12:38	20°♂55'12	-1°-3'-56
minimum elong	-462 Dec 02 j 12:44	5°♂34'15	3°29'54	minimum elong	-454 Dec 17 j 12:35	20°♂55'12	1°03'58
max. Earth dist.	-462 Dec 04 j 13:54	5°♂38'36	33.35553 AU	max. Earth dist.	-454 Dec 20 j 03:23	21°♂00'25	35.18146 AU
retrograde	-461 Mar 16 j 03:56	7°♂53'35		retrograde	-453 Mar 31 j 01:20	23°♂05'40	
min. Earth dist.	-461 Jun 02 j 10:27	6°♂38'57	31.46537 AU	min. Earth dist.	-453 Jun 17 j 20:23	21°♂54'14	33.30288 AU
opposition	-461 Jun 04 j 13:36	6°♂35'45	3°24'20	opposition	-453 Jun 20 j 12:11	21°♂50'24	-1°-25'-4
direct	-461 Aug 23 j 21:32	5°♂17'58		direct	-453 Sep 09 j 00:35	20°♂35'45	
conjunction	-461 Dec 04 j 17:56	7°♂35'14	2°54'29	conjunction	-453 Dec 19 j 12:40	22°♂43'03	-1°-36'-11
minimum elong	-461 Dec 04 j 18:04	7°♂35'15	2°54'29	minimum elong	-453 Dec 19 j 12:37	22°♂43'03	1°36'12
max. Earth dist.	-461 Dec 06 j 21:50	7°♂39'48	33.57163 AU	max. Earth dist.	-453 Dec 22 j 04:00	22°♂48'16	35.42603 AU
retrograde	-460 Mar 17 j 08:26	9°♂53'26		retrograde	-452 Apr 01 j 02:20	24°♂52'29	
min. Earth dist.	-460 Jun 03 j 17:33	8°♂39'14	31.68232 AU	min. Earth dist.	-452 Jun 18 j 20:58	23°♂41'30	33.54979 AU
opposition	-460 Jun 05 j 21:56	8°♂35'57	2°46'42	opposition	-452 Jun 21 j 14:55	23°♂37'34	-1°-58'-56
direct	-460 Aug 25 j 08:05	7°♂18'36		direct	-452 Sep 10 j 04:02	22°♂23'18	
conjunction	-460 Dec 05 j 22:33	9°♂34'34	2°19'19	conjunction	-452 Dec 20 j 12:20	24°♂29'30	-2°-7'-53
minimum elong	-460 Dec 05 j 22:39	9°♂34'35	2°19'18	minimum elong	-452 Dec 20 j 12:16	24°♂29'29	2°07'55
max. Earth dist.	-460 Dec 08 j 03:01	9°♂39'09	33.79158 AU	max. Earth dist.	-452 Dec 23 j 06:08	24°♂34'53	35.67391 AU
retrograde	-459 Mar 19 j 13:13	11°♂51'38		retrograde	-451 Apr 03 j 00:33	26°♂37'56	
min. Earth dist.	-459 Jun 05 j 22:36	10°♂37'55	31.90319 AU	min. Earth dist.	-451 Jun 20 j 22:40	25°♂27'18	33.79980 AU
opposition	-459 Jun 08 j 05:25	10°♂34'30	2°09'24	opposition	-451 Jun 23 j 17:00	25°♂23'21	-2°-32'-11
direct	-459 Aug 27 j 15:42	9°♂17'34		direct	-451 Sep 12 j 08:11	24°♂09'30	
conjunction	-459 Dec 08 j 02:42	11°♂32'14	1°44'27	conjunction	-451 Dec 22 j 11:22	26°♂14'35	-2°-39'-2
minimum elong	-459 Dec 08 j 02:46	11°♂32'15	1°44'27	minimum elong	-451 Dec 22 j 11:17	26°♂14'35	2°39'03
max. Earth dist.	-459 Dec 10 j 09:42	11°♂37'00	34.01490 AU	max. Earth dist.	-451 Dec 25 j 05:29	26°♂19'58	35.92455 AU
retrograde	-458 Mar 21 j 14:47	13°♂48'10		retrograde	-450 Apr 04 j 23:24	28°♂22'03	
min. Earth dist.	-458 Jun 08 j 05:03	12°♂34'47	32.12739 AU	min. Earth dist.	-450 Jun 22 j 21:54	27°♂11'53	34.05241 AU
opposition	-458 Jun 10 j 12:28	12°♂31'22	1°32'29	opposition	-450 Jun 25 j 18:32	27°♂07'50	-3°-4'-48
direct	-458 Aug 30 j 00:25	11°♂14'49		direct	-450 Sep 14 j 09:55	25°♂54'22	
conjunction	-458 Dec 10 j 05:55	13°♂28'12	1°09'56	conjunction	-450 Dec 24 j 09:53	27°♂58'23	-3°-9'-37
minimum elong	-458 Dec 10 j 05:58	13°♂28'12	1°09'56	minimum elong	-450 Dec 24 j 09:46	27°♂58'23	3°09'39
max. Earth dist.	-458 Dec 12 j 13:28	13°♂32'59	34.24135 AU	max. Earth dist.	-450 Dec 27 j 05:49	28°♂03'52	36.17710 AU
retrograde	-457 Mar 23 j 18:02	15°♂43'00		retrograde	-449 Mar 19 j 05:51	0°♂	
min. Earth dist.	-457 Jun 10 j 08:38	14°♂30'04	32.35491 AU	retrograde	-449 Apr 06 j 20:56	0°♂04'55	
opposition	-457 Jun 12 j 18:38	14°♂26'31	0°55'59		-449 Apr 25 j 21:39	30°♂♂	
direct	-457 Sep 01 j 06:45	13°♂10'21		min. Earth dist.	-449 Jun 24 j 23:02	28°♂55'04	34.30679 AU
conjunction	-457 Dec 12 j 08:37	15°♂22'27	0°35'48	opposition	-449 Jun 27 j 19:39	28°♂51'01	-3°-36'-47
minimum elong	-457 Dec 12 j 08:38	15°♂22'27	0°35'49	direct	-449 Sep 16 j 11:04	27°♂37'57	
max. Earth dist.	-457 Dec 14 j 18:18	15°♂27'22	34.47085 AU	conjunction	-449 Dec 26 j 08:06	29°♂40'55	-3°-39'-36
retrograde	-456 Mar 24 j 19:57	17°♂36'08		minimum elong	-449 Dec 26 j 07:59	29°♂40'54	3°39'37
min. Earth dist.	-456 Jun 11 j 13:30	16°♂23'31	32.58597 AU	max. Earth dist.	-449 Dec 29 j 04:34	29°♂46'24	36.43096 AU
opposition	-456 Jun 14 j 00:03	16°♂19'56	0°19'56		-448 Jan 05 j 07:07	0°♂	
direct	-456 Sep 02 j 11:58	15°♂04'09		retrograde	-448 Apr 07 j 19:34	1°♂46'30	
conjunction	-456 Dec 13 j 10:38	17°♂14'59	0°02'09	min. Earth dist.	-448 Jun 25 j 21:53	0°♂37'02	34.56208 AU
minimum elong	-456 Dec 13 j 10:38	17°♂14'59	0°02'08	opposition	-448 Jun 28 j 19:51	0°♂32'56	-4°-8'-6
behind sun begin	-456 Dec 13 j 04:17	17°♂14'29			-448 Jul 23 j 03:23	30°♂♂	
behind sun end	-456 Dec 13 j 16:59	17°♂15'30		direct	-448 Sep 17 j 10:43	29°♂20'14	
max. Earth dist.	-456 Dec 15 j 21:41	17°♂19'59	34.70391 AU		-448 Nov 09 j 23:49	0°♂	
desc. node	-455 Jan 05 j 07:00	18°♂00'25		conjunction	-448 Dec 27 j 05:45	1°♂22'10	-4°-9'00
retrograde	-455 Mar 26 j 22:24	19°♂27'34		minimum elong	-448 Dec 27 j 05:37	1°♂22'10	4°09'01
min. Earth dist.	-455 Jun 13 j 15:51	18°♂15'23	32.82079 AU	max. Earth dist.	-448 Dec 30 j 02:42	1°♂27'39	36.68515 AU
opposition	-455 Jun 16 j 04:41	18°♂11'41	0°-15'-36	retrograde	-447 Apr 09 j 18:37	3°♂26'50	
direct	-455 Sep 04 j 17:11	16°♂56'15		min. Earth dist.	-447 Jun 27 j 21:25	2°♂17'40	34.81771 AU
conjunction	-455 Dec 15 j 11:48	19°♂05'53	0°-31'-10	opposition	-447 Jun 30 j 19:47	2°♂13'35	-4°-38'-45
minimum elong	-455 Dec 15 j 11:47	19°♂05'53	0°31'11	direct	-447 Sep 19 j 09:01	1°♂01'14	



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 29

Attention, astronomical year style is used: The year -447 in astronomical counting style is the year 448 BCE in historical counting style.

conjunction	-447 Dec 29 j 02:58	3° $\overline{02}$ '08	-4°-37'-47	retrograde	-438 Apr 24 j 00:32	17° $\overline{32}$ '30	
minimum elong	-447 Dec 29 j 02:49	3° $\overline{02}$ '07	4°37'47	min. Earth dist.	-438 Jul 12 j 13:28	16° $\overline{26}$ '00	37.12678 AU
max. Earth dist.	-446 Jan 01 j 01:11	3° $\overline{07}$ '40	36.93928 AU	opposition	-438 Jul 15 j 18:08	16° $\overline{21}$ '43	-8°-43'-53
retrograde	-446 Apr 11 j 15:44	5° $\overline{05}$ '52		direct	-438 Oct 04 j 10:35	15° $\overline{12}$ '10	
min. Earth dist.	-446 Jun 29 j 20:24	3° $\overline{56}$ '59	35.07299 AU				
opposition	-446 Jul 02 j 19:09	3° $\overline{52}$ '54	-5°-8'-45	conjunction	-437 Jan 12 j 04:15	17° $\overline{04}$ '53	-8°-28'-29
direct	-446 Sep 21 j 09:58	2° $\overline{40}$ '52		minimum elong	-437 Jan 12 j 04:02	17° $\overline{04}$ '53	8°28'30
				max. Earth dist.	-437 Jan 15 j 08:24	17° $\overline{10}$ '32	39.23356 AU
conjunction	-446 Dec 30 j 23:39	4° $\overline{40}$ '46	-5°-5'-57	retrograde	-437 Apr 25 j 15:32	19° $\overline{01}$ '06	
minimum elong	-446 Dec 30 j 23:30	4° $\overline{40}$ '46	5°05'59	min. Earth dist.	-437 Jul 14 j 09:07	17° $\overline{54}$ '51	37.38521 AU
max. Earth dist.	-445 Jan 02 j 21:23	4° $\overline{46}$ '14	37.19291 AU	opposition	-437 Jul 17 j 12:56	17° $\overline{50}$ '38	-9°-7'-40
retrograde	-445 Apr 13 j 13:52	6° $\overline{43}$ '34		direct	-437 Oct 06 j 06:58	16° $\overline{41}$ '25	
min. Earth dist.	-445 Jul 01 j 17:55	5° $\overline{35}$ '00	35.32803 AU				
opposition	-445 Jul 04 j 17:52	5° $\overline{30}$ '52	-5°-38'-4	conjunction	-436 Jan 13 j 21:08	18° $\overline{33}$ '22	-8°-50'-55
direct	-445 Sep 23 j 08:38	4° $\overline{19}$ '08		minimum elong	-436 Jan 13 j 20:56	18° $\overline{33}$ '21	8°50'56
				max. Earth dist.	-436 Jan 17 j 00:52	18° $\overline{38}$ '57	39.48942 AU
conjunction	-444 Jan 01 j 19:54	6° $\overline{18}$ '03	-5°-33'-30	retrograde	-436 Apr 26 j 07:27	20° $\overline{28}$ '52	
minimum elong	-444 Jan 01 j 19:44	6° $\overline{18}$ '02	5°33'31	min. Earth dist.	-436 Jul 15 j 02:25	19° $\overline{22}$ '57	37.64240 AU
max. Earth dist.	-444 Jan 04 j 19:15	6° $\overline{23}$ '36	37.44619 AU	opposition	-436 Jul 18 j 07:14	19° $\overline{18}$ '42	-9°-30'-46
retrograde	-444 Apr 14 j 08:20	8° $\overline{19}$ '55		direct	-436 Oct 07 j 02:30	18° $\overline{09}$ '48	
min. Earth dist.	-444 Jul 02 j 16:35	7° $\overline{11}$ '35	35.58284 AU				
opposition	-444 Jul 05 j 16:04	7° $\overline{07}$ '28	-6°-6'-42	conjunction	-435 Jan 14 j 13:37	20° $\overline{01}$ '00	-9°-12'-45
direct	-444 Sep 24 j 08:31	5° $\overline{56}$ '03		minimum elong	-435 Jan 14 j 13:24	20° $\overline{00}$ '59	9°12'46
				max. Earth dist.	-435 Jan 17 j 17:36	20° $\overline{06}$ '34	39.74352 AU
conjunction	-443 Jan 02 j 15:32	7° $\overline{53}$ '58	-6°00'-26	retrograde	-435 Apr 28 j 01:21	21° $\overline{55}$ '49	
minimum elong	-443 Jan 02 j 15:21	7° $\overline{53}$ '57	6°00'28	min. Earth dist.	-435 Jul 16 j 21:07	20° $\overline{50}$ '07	37.89773 AU
max. Earth dist.	-443 Jan 05 j 14:42	7° $\overline{59}$ '28	37.69944 AU	opposition	-435 Jul 20 j 01:17	20° $\overline{45}$ '55	-9°-53'-13
retrograde	-443 Apr 16 j 02:09	9° $\overline{54}$ '56		direct	-435 Oct 08 j 19:16	19° $\overline{37}$ '20	
min. Earth dist.	-443 Jul 04 j 12:18	8° $\overline{46}$ '56	35.83799 AU				
opposition	-443 Jul 07 j 13:31	8° $\overline{42}$ '44	-6°-34'-39	conjunction	-434 Jan 16 j 05:59	21° $\overline{27}$ '47	-9°-33'-58
direct	-443 Sep 26 j 07:39	7° $\overline{31}$ '36		minimum elong	-434 Jan 16 j 05:47	21° $\overline{27}$ '46	9°33'59
				max. Earth dist.	-434 Jan 19 j 10:14	21° $\overline{33}$ '20	39.99554 AU
conjunction	-442 Jan 04 j 10:41	9° $\overline{28}$ '34	-6°-26'-43	retrograde	-434 Apr 29 j 17:31	23° $\overline{21}$ '55	
minimum elong	-442 Jan 04 j 10:31	9° $\overline{28}$ '33	6°26'44	min. Earth dist.	-434 Jul 18 j 14:44	22° $\overline{16}$ '28	38.15054 AU
max. Earth dist.	-442 Jan 07 j 11:14	9° $\overline{34}$ '08	37.95315 AU	opposition	-434 Jul 21 j 18:53	22° $\overline{12}$ '17	-10°-15'-2
retrograde	-442 Apr 17 j 20:38	11° $\overline{28}$ '40		direct	-434 Oct 10 j 13:09	21° $\overline{03}$ '59	
min. Earth dist.	-442 Jul 06 j 09:31	10° $\overline{20}$ '54	36.09406 AU				
opposition	-442 Jul 09 j 10:44	10° $\overline{16}$ '44	-7°-1'-54	conjunction	-433 Jan 17 j 21:48	22° $\overline{53}$ '41	-9°-54'-36
direct	-442 Sep 28 j 05:08	9° $\overline{05}$ '53		minimum elong	-433 Jan 17 j 21:35	22° $\overline{53}$ '40	9°54'37
				max. Earth dist.	-433 Jan 21 j 01:03	22° $\overline{59}$ '08	40.24487 AU
conjunction	-441 Jan 06 j 05:25	11° $\overline{01}$ '56	-6°-52'-22	retrograde	-433 May 01 j 12:03	24° $\overline{47}$ '07	
minimum elong	-441 Jan 06 j 05:13	11° $\overline{01}$ '55	6°52'24	min. Earth dist.	-433 Jul 20 j 07:52	23° $\overline{41}$ '53	38.40075 AU
max. Earth dist.	-441 Jan 09 j 06:42	11° $\overline{07}$ '31	38.20791 AU	opposition	-433 Jul 23 j 12:11	23° $\overline{37}$ '44	-10°-36'-12
retrograde	-441 Apr 19 j 15:16	13° $\overline{01}$ '12		direct	-433 Oct 12 j 04:23	22° $\overline{29}$ '41	
min. Earth dist.	-441 Jul 08 j 04:48	11° $\overline{53}$ '45	36.35109 AU				
opposition	-441 Jul 11 j 07:16	11° $\overline{49}$ '32	-7°-28'-27	conjunction	-432 Jan 19 j 13:29	24° $\overline{18}$ '40	-10°-14'-38
direct	-441 Sep 30 j 01:36	10° $\overline{39}$ '00		minimum elong	-432 Jan 19 j 13:17	24° $\overline{18}$ '39	10°14'40
				max. Earth dist.	-432 Jan 22 j 17:42	24° $\overline{24}$ '08	40.49157 AU
conjunction	-440 Jan 07 j 23:42	12° $\overline{34}$ '09	-7°-17'-21	retrograde	-432 May 02 j 03:00	26° $\overline{11}$ '22	
minimum elong	-440 Jan 07 j 23:31	12° $\overline{34}$ '08	7°17'22	min. Earth dist.	-432 Jul 21 j 01:34	25° $\overline{06}$ '18	38.64836 AU
max. Earth dist.	-440 Jan 11 j 01:17	12° $\overline{39}$ '43	38.46354 AU	opposition	-432 Jul 24 j 04:51	25° $\overline{02}$ '13	-10°-56'-45
retrograde	-440 Apr 20 j 11:21	14° $\overline{32}$ '37		direct	-432 Oct 12 j 22:08	23° $\overline{54}$ '24	
min. Earth dist.	-440 Jul 09 j 00:08	13° $\overline{25}$ '28	36.60921 AU				
opposition	-440 Jul 12 j 03:15	13° $\overline{21}$ '14	-7°-54'-18	conjunction	-431 Jan 20 j 04:37	25° $\overline{42}$ '39	-10°-34'-5
direct	-440 Sep 30 j 20:09	12° $\overline{11}$ '01		minimum elong	-431 Jan 20 j 04:24	25° $\overline{42}$ '38	10°34'06
				max. Earth dist.	-431 Jan 23 j 07:51	25° $\overline{48}$ '02	40.73600 AU
conjunction	-439 Jan 08 j 17:42	14° $\overline{05}$ '21	-7°-41'-42	retrograde	-431 May 03 j 17:41	27° $\overline{34}$ '40	
minimum elong	-439 Jan 08 j 17:30	14° $\overline{05}$ '20	7°41'44	min. Earth dist.	-431 Jul 22 j 16:50	26° $\overline{29}$ '52	38.89403 AU
max. Earth dist.	-439 Jan 11 j 20:51	14° $\overline{10}$ '59	38.72005 AU	opposition	-431 Jul 25 j 21:11	26° $\overline{25}$ '43	-11°-16'-40
retrograde	-439 Apr 22 j 05:17	16° $\overline{03}$ '01		direct	-431 Oct 14 j 14:35	25° $\overline{18}$ '09	
min. Earth dist.	-439 Jul 10 j 19:38	14° $\overline{56}$ '10	36.86786 AU				
opposition	-439 Jul 13 j 22:53	14° $\overline{51}$ '56	-8°-19'-26	conjunction	-430 Jan 21 j 19:16	27° $\overline{05}$ '41	-10°-52'-57
direct	-439 Oct 02 j 16:15	13° $\overline{42}$ '04		minimum elong	-430 Jan 21 j 19:04	27° $\overline{05}$ '40	10°52'59
				max. Earth dist.	-430 Jan 24 j 23:20	27° $\overline{11}$ '05	40.97865 AU
conjunction	-438 Jan 10 j 11:02	15° $\overline{35}$ '34	-8°-5'-24	retrograde	-430 May 05 j 05:35	28° $\overline{57}$ '02	
minimum elong	-438 Jan 10 j 10:50	15° $\overline{35}$ '33	8°05'25	min. Earth dist.	-430 Jul 24 j 09:51	27° $\overline{52}$ '22	39.13828 AU
max. Earth dist.	-438 Jan 13 j 13:46	15° $\overline{41}$ '08	38.97690 AU	opposition	-430 Jul 27 j 13:17	27° $\overline{48}$ '17	-11°-35'-57



Attention, astronomical year style is used: The year -430 in astronomical counting style is the year 431 BCE in historical counting style.

direct	-430 Oct 16 j 09:21	26° $\overline{3}$ 40'57		min. Earth dist.	-422 Aug 04 j 06:58	8° $\approx$ 25'02	41.03653 AU
				opposition	-422 Aug 07 j 08:54	8° $\approx$ 21'09	-13°-48'-26
conjunction	-429 Jan 23 j 09:49	28° $\overline{3}$ 27'47	-11°-11'-13	direct	-422 Oct 27 j 04:43	7° $\approx$ 15'46	
minimum elong	-429 Jan 23 j 09:36	28° $\overline{3}$ 27'46	11°11'13				
max. Earth dist.	-429 Jan 26 j 13:55	28° $\overline{3}$ 33'10	41.22021 AU	conjunction	-421 Feb 02 j 19:59	8° $\approx$ 57'50	-13°-17'00
	-429 Mar 28 j 23:12	0° $\approx$		minimum elong	-421 Feb 02 j 19:49	8° $\approx$ 57'50	13°17'00
retrograde	-429 May 06 j 19:02	0° $\approx$ 18'29		max. Earth dist.	-421 Feb 05 j 21:53	9° $\approx$ 02'50	43.09270 AU
	-429 Jun 15 j 17:39	30° $\overline{R}$ $\overline{3}$		retrograde	-421 May 17 j 09:38	10° $\approx$ 43'59	
min. Earth dist.	-429 Jul 26 j 00:32	29° $\overline{3}$ 14'04	39.38142 AU	min. Earth dist.	-421 Aug 05 j 20:19	9° $\approx$ 41'09	41.26028 AU
opposition	-429 Jul 29 j 04:43	29° $\overline{3}$ 09'57	-11°-54'-36	opposition	-421 Aug 08 j 22:00	9° $\approx$ 37'19	-14°-2'-30
direct	-429 Oct 18 j 02:06	28° $\overline{3}$ 02'51		direct	-421 Oct 28 j 15:59	8° $\approx$ 32'08	
conjunction	-428 Jan 24 j 23:56	29° $\overline{3}$ 49'01	-11°-28'-53	conjunction	-420 Feb 04 j 08:19	10° $\approx$ 13'39	-13°-30'-23
minimum elong	-428 Jan 24 j 23:44	29° $\overline{3}$ 49'00	11°28'55	minimum elong	-420 Feb 04 j 08:08	10° $\approx$ 13'38	13°30'25
max. Earth dist.	-428 Jan 28 j 03:48	29° $\overline{3}$ 54'20	41.46070 AU	max. Earth dist.	-420 Feb 07 j 10:33	10° $\approx$ 18'38	43.31242 AU
	-428 Jan 31 j 12:39	0° $\approx$		retrograde	-420 May 17 j 20:30	11° $\approx$ 59'15	
retrograde	-428 May 07 j 11:07	1° $\approx$ 39'05		min. Earth dist.	-420 Aug 06 j 10:45	10° $\approx$ 56'32	41.47991 AU
min. Earth dist.	-428 Jul 26 j 15:51	0° $\approx$ 34'52	39.62365 AU	opposition	-420 Aug 09 j 10:53	10° $\approx$ 52'46	-14°-16'-3
opposition	-428 Jul 29 j 19:59	0° $\approx$ 30'47	-12°-12'-38	direct	-420 Oct 29 j 05:56	9° $\approx$ 47'47	
	-428 Aug 23 j 15:15	30° $\overline{R}$ $\overline{3}$					
direct	-428 Oct 18 j 15:24	29° $\overline{3}$ 23'55		conjunction	-419 Feb 04 j 20:09	11° $\approx$ 28'46	-13°-43'-18
	-428 Dec 11 j 09:07	0° $\approx$		minimum elong	-419 Feb 04 j 20:00	11° $\approx$ 28'45	13°43'19
conjunction	-427 Jan 25 j 13:47	1° $\approx$ 09'27	-11°-45'-59	max. Earth dist.	-419 Feb 07 j 21:03	11° $\approx$ 33'39	43.52843 AU
minimum elong	-427 Jan 25 j 13:35	1° $\approx$ 09'26	11°46'00	retrograde	-419 May 19 j 06:56	13° $\approx$ 13'50	
max. Earth dist.	-427 Jan 28 j 18:38	1° $\approx$ 14'48	41.70024 AU	min. Earth dist.	-419 Aug 07 j 22:46	12° $\approx$ 11'18	41.69607 AU
retrograde	-427 May 09 j 00:57	2° $\approx$ 58'54		opposition	-419 Aug 10 j 23:21	12° $\approx$ 07'31	-14°-29'-6
min. Earth dist.	-427 Jul 28 j 06:59	1° $\approx$ 54'54	39.86464 AU	direct	-419 Oct 30 j 19:31	11° $\approx$ 02'43	
opposition	-427 Jul 31 j 10:50	1° $\approx$ 50'50	-12°-30'-3	conjunction	-418 Feb 06 j 07:47	12° $\approx$ 43'10	-13°-55'-43
direct	-427 Oct 20 j 06:36	0° $\approx$ 44'14		minimum elong	-418 Feb 06 j 07:37	12° $\approx$ 43'09	13°55'44
conjunction	-426 Jan 27 j 03:20	2° $\approx$ 29'08	-12°-2'-30	max. Earth dist.	-418 Feb 09 j 08:42	12° $\approx$ 48'01	43.74123 AU
minimum elong	-426 Jan 27 j 03:08	2° $\approx$ 29'07	12°02'32	retrograde	-418 May 20 j 17:27	14° $\approx$ 27'44	
max. Earth dist.	-426 Jan 30 j 07:10	2° $\approx$ 34'23	41.93856 AU	min. Earth dist.	-418 Aug 09 j 12:25	13° $\approx$ 25'17	41.90945 AU
retrograde	-426 May 10 j 16:16	4° $\approx$ 18'00		opposition	-418 Aug 12 j 11:40	13° $\approx$ 21'35	-14°-41'-38
min. Earth dist.	-426 Jul 29 j 20:54	3° $\approx$ 14'15	40.10432 AU	direct	-418 Nov 01 j 09:03	12° $\approx$ 16'58	
opposition	-426 Aug 02 j 01:26	3° $\approx$ 10'11	-12°-46'-51	conjunction	-417 Feb 07 j 19:14	13° $\approx$ 56'54	-14°-7'-38
direct	-426 Oct 21 j 19:25	2° $\approx$ 03'49		minimum elong	-417 Feb 07 j 19:06	13° $\approx$ 56'53	14°07'40
conjunction	-425 Jan 28 j 16:40	3° $\approx$ 48'08	-12°-18'-27	max. Earth dist.	-417 Feb 10 j 20:11	14° $\approx$ 01'44	43.95162 AU
minimum elong	-425 Jan 28 j 16:29	3° $\approx$ 48'07	12°18'28		-417 Mar 22 j 11:33	15° $\approx$	
max. Earth dist.	-425 Jan 31 j 21:26	3° $\approx$ 53'26	42.17521 AU	retrograde	-417 May 22 j 03:51	15° $\approx$ 40'58	
retrograde	-425 May 12 j 05:02	5° $\approx$ 36'26			-417 Jul 24 j 07:15	15° $\overline{R}$ $\approx$	
min. Earth dist.	-425 Jul 31 j 12:33	4° $\approx$ 32'50	40.34197 AU	min. Earth dist.	-417 Aug 11 j 00:06	14° $\approx$ 38'42	42.12035 AU
opposition	-425 Aug 03 j 15:48	4° $\approx$ 28'51	-13°-3'-5	opposition	-417 Aug 13 j 23:33	14° $\approx$ 35'00	-14°-53'-38
direct	-425 Oct 23 j 10:21	3° $\approx$ 22'45		direct	-417 Nov 02 j 22:23	13° $\approx$ 30'34	
conjunction	-424 Jan 30 j 05:53	5° $\approx$ 06'29	-12°-33'-52		-416 Feb 02 j 22:26	15° $\approx$	
minimum elong	-424 Jan 30 j 05:41	5° $\approx$ 06'28	12°33'53	conjunction	-416 Feb 09 j 06:22	15° $\approx$ 10'00	-14°-19'-4
max. Earth dist.	-424 Feb 02 j 09:50	5° $\approx$ 11'42	42.40962 AU	minimum elong	-416 Feb 09 j 06:12	15° $\approx$ 10'00	14°19'05
retrograde	-424 May 12 j 16:27	6° $\approx$ 54'14		max. Earth dist.	-416 Feb 12 j 06:10	15° $\approx$ 14'44	44.15971 AU
min. Earth dist.	-424 Aug 01 j 01:51	5° $\approx$ 50'54	40.57696 AU	retrograde	-416 May 22 j 18:06	16° $\approx$ 53'35	
opposition	-424 Aug 04 j 05:35	5° $\approx$ 46'54	-13°-18'-44	min. Earth dist.	-416 Aug 11 j 11:57	15° $\approx$ 51'29	42.32922 AU
direct	-424 Oct 24 j 01:39	4° $\approx$ 41'03		opposition	-416 Aug 14 j 11:08	15° $\approx$ 47'49	-15°-5'-8
conjunction	-423 Jan 30 j 18:46	6° $\approx$ 24'13	-12°-48'-45		-416 Sep 26 j 21:21	15° $\overline{R}$ $\approx$	
minimum elong	-423 Jan 30 j 18:35	6° $\approx$ 24'13	12°48'45	direct	-416 Nov 03 j 07:21	14° $\approx$ 43'34	
max. Earth dist.	-423 Feb 02 j 22:14	6° $\approx$ 29'23	42.64099 AU		-416 Dec 09 j 22:46	15° $\approx$	
retrograde	-423 May 14 j 05:48	8° $\approx$ 11'26		conjunction	-415 Feb 09 j 17:22	16° $\approx$ 22'32	-14°-30'-1
min. Earth dist.	-423 Aug 02 j 16:51	7° $\approx$ 08'16	40.80873 AU	minimum elong	-415 Feb 09 j 17:14	16° $\approx$ 22'32	14°30'02
opposition	-423 Aug 05 j 19:25	7° $\approx$ 04'20	-13°-33'-51	max. Earth dist.	-415 Feb 12 j 18:00	16° $\approx$ 27'18	44.36586 AU
direct	-423 Oct 25 j 15:36	5° $\approx$ 58'44		retrograde	-415 May 24 j 06:00	18° $\approx$ 05'40	
conjunction	-422 Feb 01 j 07:29	7° $\approx$ 41'21	-13°-3'-7	min. Earth dist.	-415 Aug 13 j 00:22	17° $\approx$ 03'41	42.53594 AU
minimum elong	-422 Feb 01 j 07:18	7° $\approx$ 41'20	13°03'08	opposition	-415 Aug 15 j 22:34	17° $\approx$ 00'05	-15°-16'-7
max. Earth dist.	-422 Feb 04 j 10:59	7° $\approx$ 46'29	42.86889 AU	direct	-415 Nov 04 j 17:42	15° $\approx$ 56'02	
retrograde	-422 May 15 j 19:06	9° $\approx$ 28'02		conjunction	-414 Feb 11 j 03:56	17° $\approx$ 34'33	-14°-40'-28
				minimum elong	-414 Feb 11 j 03:48	17° $\approx$ 34'32	14°40'29



## Planetary Phenomena of Pluto from -900 through -400 (UT), Astrodienst AG 7-Dez-2017 14:47, page 31

Attention, astronomical year style is used: The year -414 in astronomical counting style is the year 415 BCE in historical counting style.

max. Earth dist.	-414 Feb 14 j 03:22	17° $\approx$ 39'13	44.56997 AU	opposition	-406 Aug 26 j 19:16	27° $\approx$ 28'35	-16°-34'-33
retrograde	-414 May 25 j 16:44	19° $\approx$ 17'13		direct	-406 Nov 15 j 18:34	26° $\approx$ 26'02	
min. Earth dist.	-414 Aug 14 j 10:56	18° $\approx$ 15'28	42.74049 AU				
opposition	-414 Aug 17 j 09:46	18° $\approx$ 11'50	-15°-26'-37	conjunction	-405 Feb 21 j 21:06	28° $\approx$ 00'47	-15°-55'-18
direct	-414 Nov 06 j 04:00	17° $\approx$ 08'00		minimum elong	-405 Feb 21 j 21:01	28° $\approx$ 00'47	15°55'19
				max. Earth dist.	-405 Feb 24 j 14:56	28° $\approx$ 04'56	46.24999 AU
conjunction	-413 Feb 12 j 14:30	18° $\approx$ 46'04	-14°-50'-28	retrograde	-405 Jun 05 j 04:53	29° $\approx$ 39'42	
minimum elong	-413 Feb 12 j 14:23	18° $\approx$ 46'04	14°50'30	min. Earth dist.	-405 Aug 25 j 13:32	28° $\approx$ 38'54	44.41566 AU
max. Earth dist.	-413 Feb 15 j 14:09	18° $\approx$ 50'44	44.77165 AU	opposition	-405 Aug 28 j 04:17	28° $\approx$ 35'45	-16°-41'-10
retrograde	-413 May 27 j 00:45	20° $\approx$ 28'19		direct	-405 Nov 17 j 04:17	27° $\approx$ 33'19	
min. Earth dist.	-413 Aug 15 j 23:26	19° $\approx$ 26'40	42.94240 AU				
opposition	-413 Aug 18 j 20:40	19° $\approx$ 23'08	-15°-36'-37	conjunction	-404 Feb 23 j 06:01	29° $\approx$ 07'42	-16°-1'-36
direct	-413 Nov 07 j 17:12	18° $\approx$ 19'29		minimum elong	-404 Feb 23 j 05:58	29° $\approx$ 07'42	16°01'36
				max. Earth dist.	-404 Feb 25 j 22:19	29° $\approx$ 11'43	46.41847 AU
conjunction	-412 Feb 14 j 00:58	19° $\approx$ 57'08	-15°00'-1		-404 Mar 30 j 22:20	0° $\approx$	
minimum elong	-412 Feb 14 j 00:51	19° $\approx$ 57'08	15°00'02	retrograde	-404 Jun 05 j 15:49	0° $\approx$ 46'13	
max. Earth dist.	-412 Feb 16 j 23:58	20° $\approx$ 01'45	44.97060 AU		-404 Aug 13 j 16:43	30° $\approx$	
retrograde	-412 May 27 j 09:16	21° $\approx$ 38'58		min. Earth dist.	-404 Aug 25 j 22:26	29° $\approx$ 45'34	44.58399 AU
min. Earth dist.	-412 Aug 16 j 10:04	20° $\approx$ 37'30	43.14109 AU	opposition	-404 Aug 28 j 13:17	29° $\approx$ 42'25	-16°-47'-21
opposition	-412 Aug 19 j 07:17	20° $\approx$ 33'59	-15°-46'-10	direct	-404 Nov 17 j 11:12	28° $\approx$ 40'09	
direct	-412 Nov 08 j 05:50	19° $\approx$ 30'32			-403 Feb 14 j 03:09	0° $\approx$	
conjunction	-411 Feb 14 j 11:04	21° $\approx$ 07'46	-15°-9'-7	conjunction	-403 Feb 23 j 14:42	0° $\approx$ 14'10	-16°-7'-29
minimum elong	-411 Feb 14 j 10:57	21° $\approx$ 07'46	15°09'09	minimum elong	-403 Feb 23 j 14:38	0° $\approx$ 14'09	16°07'30
max. Earth dist.	-411 Feb 17 j 08:53	21° $\approx$ 12'17	45.16599 AU	max. Earth dist.	-403 Feb 26 j 07:24	0° $\approx$ 18'12	46.58449 AU
retrograde	-411 May 28 j 21:00	22° $\approx$ 49'11		retrograde	-403 Jun 06 j 23:40	1° $\approx$ 52'20	
min. Earth dist.	-411 Aug 17 j 21:47	21° $\approx$ 47'51	43.33607 AU	min. Earth dist.	-403 Aug 27 j 08:44	0° $\approx$ 51'44	44.74980 AU
opposition	-411 Aug 20 j 17:54	21° $\approx$ 44'24	-15°-55'-16	opposition	-403 Aug 29 j 22:11	0° $\approx$ 48'41	-16°-53'-7
direct	-411 Nov 09 j 15:40	20° $\approx$ 41'08			-403 Oct 15 j 12:09	30° $\approx$	
				direct	-403 Nov 18 j 20:08	29° $\approx$ 46'33	
conjunction	-410 Feb 15 j 21:18	22° $\approx$ 17'57	-15°-17'-49		-403 Dec 22 j 16:26	0° $\approx$	
minimum elong	-410 Feb 15 j 21:12	22° $\approx$ 17'57	15°17'49				
max. Earth dist.	-410 Feb 18 j 19:12	22° $\approx$ 22'27	45.35742 AU	conjunction	-402 Feb 24 j 23:22	1° $\approx$ 20'14	-16°-12'-58
retrograde	-410 May 30 j 07:52	23° $\approx$ 58'58		minimum elong	-402 Feb 24 j 23:20	1° $\approx$ 20'14	16°12'59
min. Earth dist.	-410 Aug 19 j 09:18	22° $\approx$ 57'44	43.52662 AU	max. Earth dist.	-402 Feb 27 j 15:07	1° $\approx$ 24'12	46.74824 AU
opposition	-410 Aug 22 j 04:11	22° $\approx$ 54'20	-16°-3'-57	retrograde	-402 Jun 08 j 06:40	2° $\approx$ 58'04	
direct	-410 Nov 11 j 01:51	21° $\approx$ 51'15		min. Earth dist.	-402 Aug 28 j 16:56	1° $\approx$ 57'39	44.91311 AU
				opposition	-402 Aug 31 j 06:43	1° $\approx$ 54'35	-16°-58'-28
conjunction	-409 Feb 17 j 07:16	23° $\approx$ 27'39	-15°-26'-6	direct	-402 Nov 20 j 05:16	0° $\approx$ 52'37	
minimum elong	-409 Feb 17 j 07:10	23° $\approx$ 27'39	15°26'08				
max. Earth dist.	-409 Feb 20 j 03:05	23° $\approx$ 31'59	45.54436 AU	conjunction	-401 Feb 26 j 07:50	2° $\approx$ 26'00	-16°-18'-4
retrograde	-409 May 31 j 20:11	25° $\approx$ 08'13		minimum elong	-401 Feb 26 j 07:47	2° $\approx$ 25'59	16°18'05
min. Earth dist.	-409 Aug 20 j 19:42	24° $\approx$ 07'07	43.71254 AU	max. Earth dist.	-401 Feb 28 j 22:48	2° $\approx$ 29'54	46.90928 AU
opposition	-409 Aug 23 j 14:19	24° $\approx$ 03'46	-16°-12'-13	retrograde	-401 Jun 09 j 15:06	4° $\approx$ 03'30	
direct	-409 Nov 12 j 09:29	23° $\approx$ 00'49		min. Earth dist.	-401 Aug 30 j 02:59	3° $\approx$ 03'11	45.07359 AU
				opposition	-401 Sep 01 j 15:18	3° $\approx$ 00'12	-17°-3'-26
conjunction	-408 Feb 18 j 17:07	24° $\approx$ 36'49	-15°-34'00	direct	-401 Nov 21 j 14:36	1° $\approx$ 58'25	
minimum elong	-408 Feb 18 j 17:02	24° $\approx$ 36'48	15°34'00				
max. Earth dist.	-408 Feb 21 j 12:44	24° $\approx$ 41'07	45.72658 AU	conjunction	-400 Feb 27 j 16:19	3° $\approx$ 31'28	-16°-22'-47
retrograde	-408 Jun 01 j 05:01	26° $\approx$ 16'57		minimum elong	-400 Feb 27 j 16:18	3° $\approx$ 31'28	16°22'49
min. Earth dist.	-408 Aug 21 j 07:34	25° $\approx$ 15'53	43.89381 AU	max. Earth dist.	-400 Mar 01 j 07:18	3° $\approx$ 35'22	47.06731 AU
opposition	-408 Aug 24 j 00:10	25° $\approx$ 12'37	-16°-20'-4	retrograde	-400 Jun 09 j 23:00	5° $\approx$ 08'41	
direct	-408 Nov 12 j 19:37	24° $\approx$ 09'49		min. Earth dist.	-400 Aug 30 j 11:49	4° $\approx$ 08'31	45.23055 AU
				opposition	-400 Sep 01 j 23:27	4° $\approx$ 05'34	-17°-8'-1
conjunction	-407 Feb 19 j 02:42	25° $\approx$ 45'23	-15°-41'-30	direct	-400 Nov 22 j 00:03	3° $\approx$ 03'57	
minimum elong	-407 Feb 19 j 02:36	25° $\approx$ 45'22	15°41'31				
max. Earth dist.	-407 Feb 21 j 21:16	25° $\approx$ 49'36	45.90460 AU				
retrograde	-407 Jun 02 j 11:10	27° $\approx$ 25'06					
min. Earth dist.	-407 Aug 22 j 17:02	26° $\approx$ 24'09	44.07102 AU				
opposition	-407 Aug 25 j 09:45	26° $\approx$ 20'54	-16°-27'-31				
direct	-407 Nov 14 j 07:58	25° $\approx$ 18'13					
conjunction	-406 Feb 20 j 11:51	26° $\approx$ 53'22	-15°-48'-36				
minimum elong	-406 Feb 20 j 11:47	26° $\approx$ 53'21	15°48'37				
max. Earth dist.	-406 Feb 23 j 05:23	26° $\approx$ 57'30	46.07881 AU				
retrograde	-406 Jun 03 j 20:02	28° $\approx$ 32'40					
min. Earth dist.	-406 Aug 24 j 03:45	27° $\approx$ 31'47	44.24485 AU				



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 1

Attention, astronomical year style is used: The year -400 in astronomical counting style is the year 401 BCE in historical counting style.

conjunction	-400 Feb 27 j 16:19	3° <del>31</del> '28	-16°-22'-47	minimum elong	-392 Mar 07 j 07:33	12° <del>04</del> '25	16°48'32
minimum elong	-400 Feb 27 j 16:18	3° <del>31</del> '28	16°22'49	max. Earth dist.	-392 Mar 09 j 13:37	12° <del>07</del> '41	48.17429 AU
max. Earth dist.	-400 Mar 01 j 07:18	3° <del>35</del> '22	47.06731 AU	retrograde	-392 Jun 18 j 15:34	13° <del>39</del> '11	
retrograde	-400 Jun 09 j 23:00	5° <del>08</del> '41		min. Earth dist.	-392 Sep 08 j 08:30	12° <del>39</del> '35	46.32496 AU
min. Earth dist.	-400 Aug 30 j 11:49	4° <del>08</del> '31	45.23055 AU	opposition	-392 Sep 10 j 12:23	12° <del>37</del> '03	-17°-32'-23
opposition	-400 Sep 01 j 23:27	4° <del>05</del> '34	-17°-8'-1	direct	-392 Nov 30 j 10:43	11° <del>36</del> '21	
direct	-400 Nov 22 j 00:03	3° <del>03</del> '57					
conjunction	-399 Feb 28 j 00:34	4° <del>36</del> '43	-16°-27'-9	conjunction	-391 Mar 08 j 14:47	13° <del>06</del> '50	-16°-50'-15
minimum elong	-399 Feb 28 j 00:32	4° <del>36</del> '43	16°27'10	minimum elong	-391 Mar 08 j 14:49	13° <del>06</del> '51	16°50'15
max. Earth dist.	-399 Mar 02 j 13:32	4° <del>40</del> '29	47.22166 AU	max. Earth dist.	-391 Mar 10 j 20:15	13° <del>10</del> '03	48.29531 AU
retrograde	-399 Jun 11 j 10:58	6° <del>13</del> '38		retrograde	-391 Jun 19 j 21:15	14° <del>41</del> '19	
min. Earth dist.	-399 Aug 31 j 20:39	5° <del>13</del> '36	45.38362 AU	min. Earth dist.	-391 Sep 09 j 17:10	13° <del>41</del> '45	46.44493 AU
opposition	-399 Sep 03 j 07:41	5° <del>10</del> '41	-17°-12'-14	opposition	-391 Sep 11 j 19:25	13° <del>39</del> '18	-17°-33'-54
direct	-399 Nov 23 j 04:51	4° <del>09</del> '14		direct	-391 Dec 01 j 18:19	12° <del>38</del> '42	
conjunction	-398 Mar 01 j 08:47	5° <del>41</del> '44	-16°-31'-10	conjunction	-390 Mar 09 j 21:57	14° <del>08</del> '56	-16°-51'-39
minimum elong	-398 Mar 01 j 08:47	5° <del>41</del> '44	16°31'11	minimum elong	-390 Mar 09 j 21:58	14° <del>08</del> '56	16°51'39
max. Earth dist.	-398 Mar 03 j 21:44	5° <del>45</del> '28	47.37169 AU	max. Earth dist.	-390 Mar 12 j 03:15	14° <del>12</del> '08	48.41365 AU
retrograde	-398 Jun 12 j 20:30	7° <del>18</del> '21		retrograde	-390 Jun 21 j 01:18	15° <del>43</del> '09	
min. Earth dist.	-398 Sep 02 j 06:52	6° <del>18</del> '21	45.53193 AU	min. Earth dist.	-390 Sep 11 j 00:08	14° <del>43</del> '41	46.56192 AU
opposition	-398 Sep 04 j 15:47	6° <del>15</del> '33	-17°-16'-6	opposition	-390 Sep 13 j 02:11	14° <del>41</del> '15	-17°-35'-4
direct	-398 Nov 24 j 11:42	5° <del>14</del> '15		direct	-390 Dec 03 j 04:15	13° <del>40</del> '46	
conjunction	-397 Mar 02 j 17:02	6° <del>46</del> '27	-16°-34'-52	conjunction	-389 Mar 11 j 05:01	15° <del>10</del> '45	-16°-52'-43
minimum elong	-397 Mar 02 j 17:02	6° <del>46</del> '27	16°34'52	minimum elong	-389 Mar 11 j 05:04	15° <del>10</del> '45	16°52'44
max. Earth dist.	-397 Mar 05 j 04:09	6° <del>50</del> '04	47.51691 AU	max. Earth dist.	-389 Mar 13 j 08:29	15° <del>13</del> '50	48.52897 AU
retrograde	-397 Jun 14 j 02:29	8° <del>22</del> '46		retrograde	-389 Jun 22 j 10:07	16° <del>44</del> '44	
min. Earth dist.	-397 Sep 03 j 14:48	7° <del>22</del> '54	45.67516 AU	min. Earth dist.	-389 Sep 12 j 07:39	15° <del>45</del> '20	46.67584 AU
opposition	-397 Sep 05 j 23:32	7° <del>20</del> '07	-17°-19'-39	opposition	-389 Sep 14 j 08:48	15° <del>42</del> '57	-17°-35'-54
direct	-397 Nov 25 j 20:21	6° <del>18</del> '56		direct	-389 Dec 04 j 10:17	14° <del>42</del> '35	
conjunction	-396 Mar 03 j 01:04	7° <del>50</del> '51	-16°-38'-14	conjunction	-388 Mar 11 j 12:07	16° <del>12</del> '21	-16°-53'-28
minimum elong	-396 Mar 03 j 01:03	7° <del>50</del> '51	16°38'16	minimum elong	-388 Mar 11 j 12:09	16° <del>12</del> '21	16°53'29
max. Earth dist.	-396 Mar 05 j 10:49	7° <del>54</del> '22	47.65694 AU	max. Earth dist.	-388 Mar 13 j 15:42	16° <del>15</del> '25	48.64096 AU
retrograde	-396 Jun 14 j 08:03	9° <del>26</del> '51		retrograde	-388 Jun 22 j 18:24	17° <del>46</del> '06	
min. Earth dist.	-396 Sep 04 j 00:39	8° <del>27</del> '00	45.81333 AU	min. Earth dist.	-388 Sep 12 j 15:55	16° <del>46</del> '45	46.78603 AU
opposition	-396 Sep 06 j 07:21	8° <del>24</del> '19	-17°-22'-52	opposition	-388 Sep 14 j 15:25	16° <del>44</del> '27	-17°-36'-26
direct	-396 Nov 26 j 06:33	7° <del>23</del> '15		direct	-388 Dec 04 j 16:08	15° <del>44</del> '11	
conjunction	-395 Mar 04 j 08:51	8° <del>54</del> '52	-16°-41'-18	conjunction	-387 Mar 12 j 18:56	17° <del>13</del> '45	-16°-53'-55
minimum elong	-395 Mar 04 j 08:52	8° <del>54</del> '52	16°41'19	minimum elong	-387 Mar 12 j 19:00	17° <del>13</del> '45	16°53'56
max. Earth dist.	-395 Mar 06 j 18:12	8° <del>58</del> '21	47.79220 AU	max. Earth dist.	-387 Mar 14 j 20:50	17° <del>16</del> '43	48.74912 AU
retrograde	-395 Jun 15 j 14:06	10° <del>30</del> '33		retrograde	-387 Jun 24 j 02:06	18° <del>47</del> '16	
min. Earth dist.	-395 Sep 05 j 08:50	9° <del>30</del> '46	45.94675 AU	min. Earth dist.	-387 Sep 13 j 22:36	17° <del>48</del> '02	46.89204 AU
opposition	-395 Sep 07 j 14:52	9° <del>28</del> '07	-17°-25'-45	opposition	-387 Sep 15 j 21:54	17° <del>45</del> '45	-17°-36'-39
direct	-395 Nov 27 j 16:38	8° <del>27</del> '09		direct	-387 Dec 05 j 20:53	16° <del>45</del> '36	
conjunction	-394 Mar 05 j 16:30	9° <del>58</del> '27	-16°-44'-2	conjunction	-386 Mar 14 j 01:53	18° <del>14</del> '58	-16°-54'-5
minimum elong	-394 Mar 05 j 16:30	9° <del>58</del> '27	16°44'04	minimum elong	-386 Mar 14 j 01:56	18° <del>14</del> '58	16°54'05
max. Earth dist.	-394 Mar 07 j 23:56	10° <del>01</del> '49	47.92311 AU	max. Earth dist.	-386 Mar 16 j 02:34	18° <del>17</del> '51	48.85266 AU
retrograde	-394 Jun 16 j 23:32	11° <del>33</del> '50		retrograde	-386 Jun 25 j 07:32	19° <del>48</del> '15	
min. Earth dist.	-394 Sep 06 j 17:01	10° <del>34</del> '06	46.07626 AU	min. Earth dist.	-386 Sep 15 j 07:18	18° <del>49</del> '01	46.99316 AU
opposition	-394 Sep 08 j 22:14	10° <del>31</del> '30	-17°-28'-19	opposition	-386 Sep 17 j 04:20	18° <del>46</del> '51	-17°-36'-35
direct	-394 Nov 28 j 22:49	9° <del>30</del> '37		direct	-386 Dec 07 j 04:25	17° <del>46</del> '48	
conjunction	-393 Mar 07 j 00:08	11° <del>01</del> '38	-16°-46'-26	conjunction	-385 Mar 15 j 08:56	19° <del>15</del> '58	-16°-53'-58
minimum elong	-393 Mar 07 j 00:10	11° <del>01</del> '38	16°46'27	minimum elong	-385 Mar 15 j 09:00	19° <del>15</del> '58	16°54'00
max. Earth dist.	-393 Mar 09 j 07:42	11° <del>04</del> '59	48.05030 AU	max. Earth dist.	-385 Mar 17 j 08:43	19° <del>18</del> '48	48.95119 AU
retrograde	-393 Jun 18 j 07:48	12° <del>36</del> '42		retrograde	-385 Jun 26 j 11:42	20° <del>49</del> '02	
min. Earth dist.	-393 Sep 08 j 01:44	11° <del>37</del> '00	46.20214 AU	min. Earth dist.	-385 Sep 16 j 14:21	19° <del>49</del> '52	47.08884 AU
opposition	-393 Sep 10 j 05:27	11° <del>34</del> '28	-17°-30'-31	opposition	-385 Sep 18 j 10:37	19° <del>47</del> '44	-17°-36'-14
direct	-393 Nov 30 j 05:13	10° <del>33</del> '41		direct	-385 Dec 08 j 13:18	18° <del>47</del> '46	
conjunction	-392 Mar 07 j 07:32	12° <del>04</del> '25	-16°-48'-31	conjunction	-384 Mar 15 j 15:39	20° <del>16</del> '44	-16°-53'-36
				minimum elong	-384 Mar 15 j 15:43	20° <del>16</del> '44	16°53'36



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 2

Attention, astronomical year style is used: The year -384 in astronomical counting style is the year 385 BCE in historical counting style.

max. Earth dist.	-384 Mar 17 j 13:04	20° <del>✕</del> 19'25	49.04423 AU	opposition	-376 Sep 26 j 13:52	28° <del>✕</del> 44'22	-17°-20'-20
retrograde	-384 Jun 26 j 19:21	21° <del>✕</del> 49'35		direct	-376 Dec 16 j 15:21	27° <del>✕</del> 45'02	
min. Earth dist.	-384 Sep 16 j 21:58	20° <del>✕</del> 50'26	47.17922 AU				
opposition	-384 Sep 18 j 16:49	20° <del>✕</del> 48'22	-17°-35'-38	conjunction	-375 Mar 25 j 00:06	29° <del>✕</del> 12'30	-16°-37'-38
direct	-384 Dec 08 j 19:14	19° <del>✕</del> 48'29		minimum elong	-375 Mar 25 j 00:12	29° <del>✕</del> 12'31	16°37'39
				max. Earth dist.	-375 Mar 26 j 13:27	29° <del>✕</del> 14'40	49.70528 AU
conjunction	-383 Mar 16 j 22:23	21° <del>✕</del> 17'14	-16°-52'-57		-375 Apr 29 j 23:26	0° <del>Υ</del>	
minimum elong	-383 Mar 16 j 22:27	21° <del>✕</del> 17'14	16°52'59	retrograde	-375 Jul 05 j 23:46	0° <del>Υ</del> 43'39	
max. Earth dist.	-383 Mar 18 j 19:30	21° <del>✕</del> 19'53	49.13216 AU		-375 Sep 12 j 21:04	30° <del>℞</del> <del>✕</del>	
retrograde	-383 Jun 28 j 02:17	22° <del>✕</del> 49'51		min. Earth dist.	-375 Sep 26 j 08:54	29° <del>✕</del> 44'49	47.82111 AU
min. Earth dist.	-383 Sep 18 j 05:40	21° <del>✕</del> 50'41	47.26456 AU	opposition	-375 Sep 27 j 19:04	29° <del>✕</del> 43'11	-17°-17'-7
opposition	-383 Sep 19 j 22:52	21° <del>✕</del> 48'42	-17°-34'-45	direct	-375 Dec 17 j 22:48	28° <del>✕</del> 43'56	
direct	-383 Dec 10 j 01:29	20° <del>✕</del> 48'53			-374 Mar 18 j 01:53	0° <del>Υ</del>	
conjunction	-382 Mar 18 j 04:50	22° <del>✕</del> 17'26	-16°-52'-3	conjunction	-374 Mar 26 j 06:03	0° <del>Υ</del> 11'18	-16°-34'-28
minimum elong	-382 Mar 18 j 04:55	22° <del>✕</del> 17'26	16°52'03	minimum elong	-374 Mar 26 j 06:11	0° <del>Υ</del> 11'18	16°34'29
max. Earth dist.	-382 Mar 20 j 00:04	22° <del>✕</del> 19'58	49.21553 AU	max. Earth dist.	-374 Mar 27 j 17:13	0° <del>Υ</del> 13'20	49.76141 AU
retrograde	-382 Jun 29 j 10:12	23° <del>✕</del> 49'49		retrograde	-374 Jul 07 j 05:57	1° <del>Υ</del> 42'19	
min. Earth dist.	-382 Sep 19 j 11:47	22° <del>✕</del> 50'42	47.34562 AU	min. Earth dist.	-374 Sep 27 j 15:54	0° <del>Υ</del> 43'29	47.87431 AU
opposition	-382 Sep 21 j 04:45	22° <del>✕</del> 48'45	-17°-33'-35	opposition	-374 Sep 29 j 00:22	0° <del>Υ</del> 41'56	-17°-13'-38
direct	-382 Dec 11 j 05:13	21° <del>✕</del> 48'59			-374 Nov 08 j 18:21	30° <del>℞</del> <del>✕</del>	
				direct	-374 Dec 19 j 04:47	29° <del>✕</del> 42'45	
conjunction	-381 Mar 19 j 11:17	23° <del>✕</del> 17'20	-16°-50'-51		-373 Jan 28 j 00:31	0° <del>Υ</del>	
minimum elong	-381 Mar 19 j 11:22	23° <del>✕</del> 17'20	16°50'53				
max. Earth dist.	-381 Mar 21 j 05:42	23° <del>✕</del> 19'49	49.29476 AU	conjunction	-373 Mar 27 j 12:15	1° <del>Υ</del> 09'59	-16°-31'-3
retrograde	-381 Jun 30 j 15:37	24° <del>✕</del> 49'30		minimum elong	-373 Mar 27 j 12:23	1° <del>Υ</del> 09'59	16°31'03
min. Earth dist.	-381 Sep 20 j 19:33	23° <del>✕</del> 50'22	47.42290 AU	max. Earth dist.	-373 Mar 28 j 22:53	1° <del>Υ</del> 11'59	49.81257 AU
opposition	-381 Sep 22 j 10:27	23° <del>✕</del> 48'30	-17°-32'-7	retrograde	-373 Jul 08 j 11:23	2° <del>Υ</del> 40'51	
direct	-381 Dec 12 j 10:45	22° <del>✕</del> 48'48		min. Earth dist.	-373 Sep 28 j 22:36	1° <del>Υ</del> 42'01	47.92218 AU
				opposition	-373 Sep 30 j 05:27	1° <del>Υ</del> 40'33	-17°-9'-56
conjunction	-380 Mar 19 j 17:40	24° <del>✕</del> 16'58	-16°-49'-23	direct	-373 Dec 20 j 11:27	0° <del>Υ</del> 41'24	
minimum elong	-380 Mar 19 j 17:46	24° <del>✕</del> 16'59	16°49'23				
max. Earth dist.	-380 Mar 21 j 11:37	24° <del>✕</del> 19'25	49.37067 AU	conjunction	-372 Mar 27 j 18:14	2° <del>Υ</del> 08'31	-16°-27'-24
retrograde	-380 Jun 30 j 18:09	25° <del>✕</del> 48'56		minimum elong	-372 Mar 27 j 18:22	2° <del>Υ</del> 08'31	16°27'25
min. Earth dist.	-380 Sep 21 j 01:09	24° <del>✕</del> 49'52	47.49689 AU	max. Earth dist.	-372 Mar 29 j 02:36	2° <del>Υ</del> 10'22	49.85852 AU
opposition	-380 Sep 22 j 16:02	24° <del>✕</del> 48'01	-17°-30'-22	retrograde	-372 Jul 08 j 19:50	3° <del>Υ</del> 39'13	
direct	-380 Dec 12 j 19:44	23° <del>✕</del> 48'22		min. Earth dist.	-372 Sep 29 j 04:22	2° <del>Υ</del> 40'24	47.96484 AU
				opposition	-372 Sep 30 j 10:34	2° <del>Υ</del> 38'58	-17°-5'-58
conjunction	-379 Mar 20 j 23:40	25° <del>✕</del> 16'22	-16°-47'-36	direct	-372 Dec 20 j 14:00	1° <del>Υ</del> 39'51	
minimum elong	-379 Mar 20 j 23:45	25° <del>✕</del> 16'23	16°47'37				
max. Earth dist.	-379 Mar 22 j 15:51	25° <del>✕</del> 18'43	49.44350 AU	conjunction	-371 Mar 29 j 00:00	3° <del>Υ</del> 06'50	-16°-23'-31
retrograde	-379 Jul 02 j 00:34	26° <del>✕</del> 48'10		minimum elong	-371 Mar 29 j 00:08	3° <del>Υ</del> 06'50	16°23'32
min. Earth dist.	-379 Sep 22 j 07:51	25° <del>✕</del> 49'07	47.56803 AU	max. Earth dist.	-371 Mar 30 j 07:15	3° <del>Υ</del> 08'37	49.89923 AU
opposition	-379 Sep 23 j 21:42	25° <del>✕</del> 47'19	-17°-28'-18	retrograde	-371 Jul 10 j 02:38	4° <del>Υ</del> 37'23	
direct	-379 Dec 14 j 02:12	24° <del>✕</del> 47'45		min. Earth dist.	-371 Sep 30 j 11:44	3° <del>Υ</del> 38'29	48.00246 AU
				opposition	-371 Oct 01 j 15:43	3° <del>Υ</del> 37'09	-17°-1'-47
conjunction	-378 Mar 22 j 05:55	26° <del>✕</del> 15'35	-16°-45'-33	direct	-371 Dec 21 j 17:39	2° <del>Υ</del> 38'04	
minimum elong	-378 Mar 22 j 06:02	26° <del>✕</del> 15'36	16°45'33				
max. Earth dist.	-378 Mar 23 j 22:24	26° <del>✕</del> 17'57	49.51354 AU	conjunction	-370 Mar 30 j 05:55	4° <del>Υ</del> 04'54	-16°-19'-24
retrograde	-378 Jul 03 j 07:52	27° <del>✕</del> 47'12		minimum elong	-370 Mar 30 j 06:03	4° <del>Υ</del> 04'55	16°19'25
min. Earth dist.	-378 Sep 23 j 14:29	26° <del>✕</del> 48'12	47.63623 AU	max. Earth dist.	-370 Mar 31 j 12:18	4° <del>Υ</del> 06'39	49.93536 AU
opposition	-378 Sep 25 j 03:07	26° <del>✕</del> 46'27	-17°-25'-56	retrograde	-370 Jul 11 j 04:52	5° <del>Υ</del> 35'17	
direct	-378 Dec 15 j 07:14	25° <del>✕</del> 46'57		opposition	-370 Oct 02 j 20:28	4° <del>Υ</del> 35'06	-16°-57'-20
				min. Earth dist.	-370 Oct 01 j 16:50	4° <del>Υ</del> 36'24	48.03564 AU
conjunction	-377 Mar 23 j 12:02	27° <del>✕</del> 14'40	-16°-43'-11	direct	-370 Dec 23 j 01:03	3° <del>Υ</del> 36'01	
minimum elong	-377 Mar 23 j 12:07	27° <del>✕</del> 14'40	16°43'12				
max. Earth dist.	-377 Mar 25 j 02:47	27° <del>✕</del> 16'55	49.58080 AU	conjunction	-369 Mar 31 j 11:38	5° <del>Υ</del> 02'44	-16°-15'-1
retrograde	-377 Jul 04 j 16:13	28° <del>✕</del> 46'07		minimum elong	-369 Mar 31 j 11:47	5° <del>Υ</del> 02'45	16°15'02
min. Earth dist.	-377 Sep 24 j 19:56	27° <del>✕</del> 47'12	47.70149 AU	max. Earth dist.	-369 Apr 01 j 15:57	5° <del>Υ</del> 04'22	49.96728 AU
opposition	-377 Sep 26 j 08:30	27° <del>✕</del> 45'27	-17°-23'-16	retrograde	-369 Jul 12 j 08:53	6° <del>Υ</del> 32'58	
direct	-377 Dec 16 j 09:53	26° <del>✕</del> 46'03		min. Earth dist.	-369 Oct 02 j 23:13	5° <del>Υ</del> 34'03	48.06501 AU
				opposition	-369 Oct 04 j 01:23	5° <del>Υ</del> 32'48	-16°-52'-38
conjunction	-376 Mar 23 j 18:00	28° <del>✕</del> 13'38	-16°-40'-33	direct	-369 Dec 24 j 07:43	4° <del>Υ</del> 33'44	
minimum elong	-376 Mar 23 j 18:08	28° <del>✕</del> 13'38	16°40'34				
max. Earth dist.	-376 Mar 25 j 08:01	28° <del>✕</del> 15'50	49.64479 AU	conjunction	-368 Mar 31 j 17:18	6° <del>Υ</del> 00'21	-16°-10'-24
retrograde	-376 Jul 04 j 21:06	29° <del>✕</del> 44'55		minimum elong	-368 Mar 31 j 17:26	6° <del>Υ</del> 00'21	16°10'25
min. Earth dist.	-376 Sep 25 j 03:17	28° <del>✕</del> 46'01	47.76329 AU	max. Earth dist.	-368 Apr 01 j 21:43	6° <del>Υ</del> 01'58	49.99562 AU



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 3

Attention, astronomical year style is used: The year -368 in astronomical counting style is the year 369 BCE in historical counting style.

retrograde	-368 Jul 12 j 13:45	7°♊30'27		direct	-359 Jan 01 j 00:04	13°♊10'14	
min. Earth dist.	-368 Oct 03 j 05:05	6°♊31'30	48.09088 AU				
opposition	-368 Oct 04 j 06:07	6°♊30'19	-16°-47'-39	conjunction	-359 Apr 09 j 19:36	14°♊36'28	-15°-17'-16
direct	-368 Dec 24 j 13:56	5°♊31'17		minimum elong	-359 Apr 09 j 19:46	14°♊36'29	15°17'17
				max. Earth dist.	-359 Apr 10 j 11:46	14°♊37'23	50.09364 AU
conjunction	-367 Apr 01 j 22:51	6°♊57'47	-16°-5'-30	retrograde	-359 Jul 21 j 14:12	16°♊05'56	
minimum elong	-367 Apr 01 j 23:01	6°♊57'48	16°05'31	opposition	-359 Oct 12 j 23:27	15°♊06'17	-15°-51'-12
max. Earth dist.	-367 Apr 03 j 01:31	6°♊59'19	50.02089 AU	min. Earth dist.	-359 Oct 12 j 08:58	15°♊06'58	48.16122 AU
retrograde	-367 Jul 13 j 21:30	8°♊27'46		direct	-358 Jan 02 j 06:53	14°♊07'32	
min. Earth dist.	-367 Oct 04 j 09:50	7°♊28'52	48.11386 AU				
opposition	-367 Oct 05 j 10:48	7°♊27'41	-16°-42'-24	conjunction	-358 Apr 11 j 01:15	15°♊33'44	-15°-10'-12
direct	-367 Dec 25 j 16:24	6°♊28'40		minimum elong	-358 Apr 11 j 01:26	15°♊33'44	15°10'13
				max. Earth dist.	-358 Apr 11 j 17:05	15°♊34'38	50.08114 AU
conjunction	-366 Apr 03 j 04:23	7°♊55'06	-16°00'-20	retrograde	-358 Jul 22 j 17:56	17°♊03'07	
minimum elong	-366 Apr 03 j 04:31	7°♊55'07	16°00'21	opposition	-358 Oct 14 j 03:54	16°♊03'28	-15°-43'-45
max. Earth dist.	-366 Apr 04 j 06:19	7°♊56'35	50.04321 AU	min. Earth dist.	-358 Oct 13 j 14:42	16°♊04'06	48.14518 AU
retrograde	-366 Jul 15 j 02:48	9°♊24'59		direct	-357 Jan 03 j 14:04	15°♊04'43	
opposition	-366 Oct 06 j 15:33	8°♊24'57	-16°-36'-53				
min. Earth dist.	-366 Oct 05 j 16:27	8°♊26'03	48.13386 AU	conjunction	-357 Apr 12 j 06:46	16°♊30'52	-15°-2'-55
direct	-366 Dec 26 j 20:32	7°♊25'59		minimum elong	-357 Apr 12 j 06:56	16°♊30'53	15°02'56
				max. Earth dist.	-357 Apr 12 j 20:26	16°♊31'39	50.06418 AU
conjunction	-365 Apr 04 j 10:02	8°♊52'22	-15°-54'-55	retrograde	-357 Jul 24 j 01:41	18°♊00'12	
minimum elong	-365 Apr 04 j 10:13	8°♊52'23	15°54'55	opposition	-357 Oct 15 j 08:08	17°♊00'33	-15°-36'-4
max. Earth dist.	-365 Apr 05 j 11:28	8°♊53'49	50.06270 AU	min. Earth dist.	-357 Oct 14 j 19:32	17°♊01'09	48.12505 AU
retrograde	-365 Jul 16 j 05:44	10°♊22'09		direct	-356 Jan 04 j 16:29	16°♊01'46	
opposition	-365 Oct 07 j 20:01	9°♊22'12	-16°-31'-5				
min. Earth dist.	-365 Oct 06 j 21:02	9°♊23'17	48.15080 AU	conjunction	-356 Apr 12 j 12:15	17°♊27'54	-14°-55'-24
direct	-365 Dec 28 j 02:38	8°♊23'16		minimum elong	-356 Apr 12 j 12:27	17°♊27'55	14°55'24
				max. Earth dist.	-356 Apr 13 j 01:02	17°♊28'37	50.04326 AU
conjunction	-364 Apr 04 j 15:30	9°♊49'37	-15°-49'-13	retrograde	-356 Jul 24 j 07:37	18°♊57'10	
minimum elong	-364 Apr 04 j 15:39	9°♊49'38	15°49'14	opposition	-356 Oct 15 j 12:35	17°♊57'31	-15°-28'-8
max. Earth dist.	-364 Apr 05 j 14:57	9°♊50'58	50.07898 AU	min. Earth dist.	-356 Oct 15 j 01:53	17°♊58'02	48.10122 AU
retrograde	-364 Jul 16 j 11:01	11°♊19'21		direct	-355 Jan 04 j 19:35	16°♊58'42	
min. Earth dist.	-364 Oct 07 j 03:12	10°♊20'29	48.16444 AU				
opposition	-364 Oct 08 j 00:41	10°♊19'28	-16°-25'-1	conjunction	-355 Apr 13 j 17:37	18°♊24'50	-14°-47'-38
direct	-364 Dec 28 j 07:53	9°♊20'36		minimum elong	-355 Apr 13 j 17:48	18°♊24'50	14°47'38
				max. Earth dist.	-355 Apr 14 j 05:51	18°♊25'31	50.01907 AU
conjunction	-363 Apr 05 j 21:00	10°♊46'55	-15°-43'-17	retrograde	-355 Jul 25 j 11:07	19°♊54'03	
minimum elong	-363 Apr 05 j 21:11	10°♊46'56	15°43'18	opposition	-355 Oct 16 j 16:54	18°♊54'23	-15°-19'-57
max. Earth dist.	-363 Apr 06 j 20:22	10°♊48'15	50.09167 AU	min. Earth dist.	-355 Oct 16 j 06:15	18°♊54'54	48.07415 AU
retrograde	-363 Jul 17 j 15:46	12°♊16'37		direct	-354 Jan 06 j 00:58	17°♊55'33	
min. Earth dist.	-363 Oct 08 j 09:07	11°♊17'45	48.17397 AU				
opposition	-363 Oct 09 j 05:17	11°♊16'48	-16°-18'-43	conjunction	-354 Apr 14 j 23:03	19°♊21'41	-14°-39'-37
direct	-363 Dec 29 j 13:53	10°♊17'59		minimum elong	-354 Apr 14 j 23:15	19°♊21'42	14°39'37
				max. Earth dist.	-354 Apr 15 j 09:18	19°♊22'16	49.99170 AU
conjunction	-362 Apr 07 j 02:39	11°♊44'17	-15°-37'-6	retrograde	-354 Jul 26 j 14:53	20°♊50'52	
minimum elong	-362 Apr 07 j 02:49	11°♊44'17	15°37'07	opposition	-354 Oct 17 j 21:13	19°♊51'13	-15°-11'-29
max. Earth dist.	-362 Apr 07 j 23:50	11°♊45'29	50.10004 AU	min. Earth dist.	-354 Oct 17 j 12:03	19°♊51'39	48.04410 AU
retrograde	-362 Jul 19 j 00:15	13°♊13'56		direct	-353 Jan 07 j 06:33	18°♊52'22	
opposition	-362 Oct 10 j 09:44	12°♊14'11	-16°-12'-10				
min. Earth dist.	-362 Oct 09 j 14:24	12°♊15'06	48.17888 AU	conjunction	-353 Apr 16 j 04:39	20°♊18'31	-14°-31'-20
direct	-362 Dec 30 j 15:40	11°♊15'25		minimum elong	-353 Apr 16 j 04:49	20°♊18'31	14°31'21
				max. Earth dist.	-353 Apr 16 j 14:51	20°♊19'05	49.96137 AU
conjunction	-361 Apr 08 j 08:25	12°♊41'42	-15°-30'-42	retrograde	-353 Jul 27 j 18:06	21°♊47'41	
minimum elong	-361 Apr 08 j 08:35	12°♊41'43	15°30'44	opposition	-353 Oct 19 j 01:34	20°♊48'03	-15°-2'-47
max. Earth dist.	-361 Apr 09 j 04:13	12°♊42'49	50.10328 AU	min. Earth dist.	-353 Oct 18 j 17:21	20°♊48'26	48.01088 AU
retrograde	-361 Jul 20 j 07:52	14°♊11'17		direct	-352 Jan 08 j 13:10	19°♊49'11	
opposition	-361 Oct 11 j 14:26	13°♊11'35	-16°-5'-24				
min. Earth dist.	-361 Oct 10 j 21:31	13°♊12'23	48.17840 AU	conjunction	-352 Apr 16 j 09:58	21°♊15'21	-14°-22'-49
direct	-361 Dec 31 j 18:09	12°♊12'51		minimum elong	-352 Apr 16 j 10:10	21°♊15'22	14°22'50
				max. Earth dist.	-352 Apr 16 j 18:24	21°♊15'50	49.92793 AU
conjunction	-360 Apr 08 j 14:03	13°♊39'07	-15°-24'-6	retrograde	-352 Jul 28 j 01:14	22°♊44'32	
minimum elong	-360 Apr 08 j 14:13	13°♊39'07	15°24'06	opposition	-352 Oct 19 j 05:53	21°♊44'55	-14°-53'-48
max. Earth dist.	-360 Apr 09 j 08:38	13°♊40'10	50.10118 AU	min. Earth dist.	-352 Oct 18 j 22:11	21°♊45'17	47.97441 AU
retrograde	-360 Jul 20 j 10:58	15°♊08'38		direct	-351 Jan 08 j 16:17	20°♊46'03	
opposition	-360 Oct 11 j 18:55	14°♊08'58	-15°-58'-24				
min. Earth dist.	-360 Oct 11 j 02:26	14°♊09'45	48.17238 AU	conjunction	-351 Apr 17 j 15:29	22°♊12'16	-14°-14'-3



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 4

Attention, astronomical year style is used: The year -351 in astronomical counting style is the year 352 BCE in historical counting style.

minimum elong	-351 Apr 17 j 15:40	22°♈12'16	14°14'04	max. Earth dist.	-343 Apr 25 j 09:49	29°♈49'06	49.42498 AU
max. Earth dist.	-351 Apr 17 j 22:53	22°♈12'41	49.89086 AU		-343 May 03 j 10:12	0°♈	
retrograde	-351 Jul 29 j 08:55	23°♈41'27		retrograde	-343 Aug 05 j 21:57	1°♈18'42	
opposition	-351 Oct 20 j 10:15	22°♈41'51	-14°-44'-36	opposition	-343 Oct 27 j 21:12	0°♈18'56	-13°-22'-36
min. Earth dist.	-351 Oct 20 j 04:40	22°♈42'07	47.93404 AU	min. Earth dist.	-343 Oct 28 j 01:13	0°♈18'45	47.43919 AU
direct	-350 Jan 09 j 18:33	21°♈42'59			-343 Nov 13 j 18:24	30°♈	
				direct	-342 Jan 17 j 11:53	29°♈19'43	
conjunction	-350 Apr 18 j 21:09	23°♈09'15	-14°-5'-3		-342 Mar 21 j 18:16	0°♈	
minimum elong	-350 Apr 18 j 21:21	23°♈09'16	14°05'04				
max. Earth dist.	-350 Apr 19 j 03:34	23°♈09'37	49.84970 AU	conjunction	-342 Apr 26 j 18:42	0°♈46'33	-12°-45'00
retrograde	-350 Jul 30 j 14:00	24°♈38'27		minimum elong	-342 Apr 26 j 18:53	0°♈46'34	12°45'01
opposition	-350 Oct 21 j 14:34	23°♈38'53	-14°-35'-9	max. Earth dist.	-342 Apr 26 j 13:41	0°♈46'16	49.34914 AU
min. Earth dist.	-350 Oct 21 j 09:26	23°♈39'07	47.88906 AU	retrograde	-342 Aug 07 j 04:55	2°♈16'03	
direct	-349 Jan 10 j 22:40	22°♈40'00		opposition	-342 Oct 29 j 01:37	1°♈16'16	-13°-11'-14
				min. Earth dist.	-342 Oct 29 j 06:08	1°♈16'03	47.36049 AU
conjunction	-349 Apr 20 j 02:48	24°♈06'20	-13°-55'-50	direct	-341 Jan 18 j 15:24	0°♈17'00	
minimum elong	-349 Apr 20 j 02:59	24°♈06'21	13°55'49				
max. Earth dist.	-349 Apr 20 j 06:42	24°♈06'33	49.80351 AU	conjunction	-341 Apr 28 j 00:31	1°♈43'57	-12°-33'-55
retrograde	-349 Jul 31 j 18:09	25°♈35'33		minimum elong	-341 Apr 28 j 00:44	1°♈43'58	12°33'55
opposition	-349 Oct 22 j 18:56	24°♈35'58	-14°-25'-28	max. Earth dist.	-341 Apr 27 j 18:38	1°♈43'37	49.27043 AU
min. Earth dist.	-349 Oct 22 j 15:56	24°♈36'07	47.83894 AU	retrograde	-341 Aug 08 j 12:49	3°♈13'32	
direct	-348 Jan 12 j 04:22	23°♈37'04		opposition	-341 Oct 30 j 06:07	2°♈13'44	-12°-59'-36
				min. Earth dist.	-341 Oct 30 j 12:20	2°♈13'27	47.27894 AU
conjunction	-348 Apr 20 j 08:35	25°♈03'28	-13°-46'-23	direct	-340 Jan 19 j 17:38	1°♈14'26	
minimum elong	-348 Apr 20 j 08:47	25°♈03'28	13°46'25				
max. Earth dist.	-348 Apr 20 j 11:55	25°♈03'39	49.75207 AU	conjunction	-340 Apr 28 j 06:22	2°♈41'32	-12°-22'-34
retrograde	-348 Jul 31 j 20:59	26°♈32'42		minimum elong	-340 Apr 28 j 06:33	2°♈41'33	12°22'34
opposition	-348 Oct 22 j 23:23	25°♈33'07	-14°-15'-35	max. Earth dist.	-340 Apr 27 j 23:53	2°♈41'10	49.18905 AU
min. Earth dist.	-348 Oct 22 j 21:41	25°♈33'12	47.78339 AU	retrograde	-340 Aug 08 j 19:46	3°♈11'12	
direct	-347 Jan 12 j 11:46	24°♈34'10		opposition	-340 Oct 30 j 10:34	3°♈11'24	-12°-47'-43
				min. Earth dist.	-340 Oct 30 j 16:48	3°♈11'06	47.19445 AU
conjunction	-347 Apr 21 j 14:08	26°♈00'37	-13°-36'-44	direct	-339 Jan 19 j 20:22	2°♈12'03	
minimum elong	-347 Apr 21 j 14:20	26°♈00'37	13°36'44				
max. Earth dist.	-347 Apr 21 j 15:06	26°♈00'40	49.69543 AU	conjunction	-339 Apr 29 j 12:07	3°♈39'19	-12°-10'-58
retrograde	-347 Aug 02 j 04:18	27°♈29'53		minimum elong	-339 Apr 29 j 12:20	3°♈39'20	12°10'59
opposition	-347 Oct 24 j 03:46	26°♈30'16	-14°-5'-28	max. Earth dist.	-339 Apr 29 j 03:38	3°♈38'50	49.10439 AU
min. Earth dist.	-347 Oct 24 j 02:55	26°♈30'18	47.72279 AU	retrograde	-339 Aug 10 j 00:43	5°♈09'06	
direct	-346 Jan 13 j 14:44	25°♈31'16		opposition	-339 Oct 31 j 15:13	4°♈09'17	-12°-35'-34
				min. Earth dist.	-339 Oct 31 j 23:25	4°♈08'54	47.10645 AU
conjunction	-346 Apr 22 j 19:55	26°♈57'46	-13°-26'-52	direct	-338 Jan 21 j 01:45	3°♈09'54	
minimum elong	-346 Apr 22 j 20:07	26°♈57'47	13°26'53				
max. Earth dist.	-346 Apr 22 j 19:39	26°♈57'45	49.63376 AU	conjunction	-338 Apr 30 j 18:20	4°♈37'20	-11°-59'-8
retrograde	-346 Aug 03 j 10:49	28°♈27'03		minimum elong	-338 Apr 30 j 18:32	4°♈37'20	11°59'08
opposition	-346 Oct 25 j 08:07	27°♈27'25	-13°-55'-7	max. Earth dist.	-338 Apr 30 j 09:27	4°♈36'49	49.01582 AU
min. Earth dist.	-346 Oct 25 j 09:32	27°♈27'21	47.65745 AU	retrograde	-338 Aug 11 j 02:37	6°♈07'14	
direct	-345 Jan 14 j 17:51	26°♈28'22		opposition	-338 Nov 01 j 19:46	5°♈07'24	-12°-23'-10
				min. Earth dist.	-338 Nov 02 j 05:07	5°♈06'57	47.01409 AU
conjunction	-345 Apr 24 j 01:44	27°♈54'55	-13°-16'-46	direct	-337 Jan 22 j 10:10	4°♈07'58	
minimum elong	-345 Apr 24 j 01:56	27°♈54'56	13°16'46				
max. Earth dist.	-345 Apr 24 j 00:36	27°♈54'52	49.56783 AU	conjunction	-337 May 02 j 00:32	5°♈35'33	-11°-47'-4
retrograde	-345 Aug 04 j 15:02	29°♈24'14		minimum elong	-337 May 02 j 00:44	5°♈35'34	11°47'05
opposition	-345 Oct 26 j 12:26	28°♈24'33	-13°-44'-32	max. Earth dist.	-337 May 01 j 13:14	5°♈34'55	48.92266 AU
min. Earth dist.	-345 Oct 26 j 14:02	28°♈24'28	47.58805 AU	retrograde	-337 Aug 12 j 09:40	7°♈05'35	
direct	-344 Jan 15 j 23:13	27°♈25'26		opposition	-337 Nov 03 j 00:30	6°♈05'43	-12°-10'-33
				min. Earth dist.	-337 Nov 03 j 10:53	6°♈05'14	46.91690 AU
conjunction	-344 Apr 24 j 07:13	28°♈52'05	-13°-6'-26	direct	-336 Jan 23 j 14:24	5°♈06'13	
minimum elong	-344 Apr 24 j 07:24	28°♈52'06	13°06'27				
max. Earth dist.	-344 Apr 24 j 03:58	28°♈51'54	49.49801 AU	conjunction	-336 May 02 j 06:42	6°♈33'58	-11°-34'-46
	-344 Jun 19 j 19:30	0°♈		minimum elong	-336 May 02 j 06:54	6°♈33'58	11°34'46
retrograde	-344 Aug 04 j 18:54	0°♈21'26		max. Earth dist.	-336 May 01 j 18:05	6°♈33'14	48.82429 AU
	-344 Sep 20 j 03:42	30°♈		retrograde	-336 Aug 12 j 17:15	8°♈04'07	
opposition	-344 Oct 26 j 16:52	29°♈21'43	-13°-33'-41	opposition	-336 Nov 03 j 05:26	7°♈04'12	-11°-57'-41
min. Earth dist.	-344 Oct 26 j 20:06	29°♈21'34	47.51518 AU	min. Earth dist.	-336 Nov 03 j 18:02	7°♈03'36	46.81442 AU
direct	-343 Jan 16 j 04:57	28°♈22'32		direct	-335 Jan 23 j 17:45	6°♈04'36	
conjunction	-343 Apr 25 j 13:00	29°♈49'17	-12°-55'-50	conjunction	-335 May 03 j 13:04	7°♈32'30	-11°-22'-15
minimum elong	-343 Apr 25 j 13:13	29°♈49'18	12°55'51	minimum elong	-335 May 03 j 13:16	7°♈32'31	11°22'16



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 5

Attention, astronomical year style is used: The year -335 in astronomical counting style is the year 336 BCE in historical counting style.

max. Earth dist.	-335 May 02 j 23:16	7°831'43	48.72087 AU	max. Earth dist.	-327 May 10 j 17:35	15°823'50	47.75420 AU
retrograde	-335 Aug 13 j 23:31	9°802'46		retrograde	-327 Aug 21 j 22:34	16°856'48	
opposition	-335 Nov 04 j 10:09	8°802'46	-11°-44'-36	opposition	-327 Nov 12 j 02:55	15°856'13	-9°-50'-31
min. Earth dist.	-335 Nov 04 j 23:14	8°802'09	46.70690 AU	min. Earth dist.	-327 Nov 13 j 00:41	15°855'09	45.71456 AU
direct	-334 Jan 24 j 22:22	7°803'04			-326 Jan 12 j 21:46	15°8	
				direct	-326 Feb 01 j 19:06	14°855'39	
conjunction	-334 May 04 j 19:24	8°831'08	-11°-9'-30		-326 Feb 21 j 12:52	15°8	
minimum elong	-334 May 04 j 19:37	8°831'09	11°09'31	max. Earth dist.	-326 May 11 j 23:46	16°824'03	47.61877 AU
max. Earth dist.	-334 May 04 j 03:06	8°830'12	48.61248 AU				
retrograde	-334 Aug 15 j 05:23	10°801'29		conjunction	-326 May 13 j 01:00	16°825'32	-9°-18'-31
opposition	-334 Nov 05 j 15:05	9°801'25	-11°-31'-15	minimum elong	-326 May 13 j 01:11	16°825'32	9°18'32
min. Earth dist.	-334 Nov 06 j 06:10	9°800'41	46.59471 AU	retrograde	-326 Aug 23 j 06:49	17°857'21	
direct	-333 Jan 26 j 03:43	8°801'36		opposition	-326 Nov 13 j 08:34	16°856'42	-9°-35'-3
max. Earth dist.	-333 May 05 j 09:20	9°828'53	48.49962 AU	min. Earth dist.	-326 Nov 14 j 08:28	16°855'32	45.57548 AU
				direct	-325 Feb 02 j 23:08	15°856'03	
conjunction	-333 May 06 j 01:54	9°829'50	-10°-56'-31	max. Earth dist.	-325 May 13 j 05:49	17°824'40	47.47888 AU
minimum elong	-333 May 06 j 02:05	9°829'51	10°56'32				
retrograde	-333 Aug 16 j 08:18	11°800'18		conjunction	-325 May 14 j 08:19	17°826'13	-9°-3'-29
opposition	-333 Nov 06 j 19:55	10°800'08	-11°-17'-40	minimum elong	-325 May 14 j 08:30	17°826'14	9°03'29
min. Earth dist.	-333 Nov 07 j 11:58	9°859'22	46.47827 AU	retrograde	-325 Aug 24 j 15:06	18°858'18	
direct	-332 Jan 27 j 11:48	9°800'12		opposition	-325 Nov 14 j 14:09	17°857'34	-9°-19'-20
				min. Earth dist.	-325 Nov 15 j 14:31	17°856'23	45.43161 AU
conjunction	-332 May 06 j 08:16	10°828'36	-10°-43'-17	direct	-324 Feb 04 j 03:37	16°856'49	
minimum elong	-332 May 06 j 08:28	10°828'37	10°43'18	max. Earth dist.	-324 May 13 j 10:39	18°825'35	47.33388 AU
max. Earth dist.	-332 May 05 j 13:41	10°827'32	48.38295 AU				
retrograde	-332 Aug 16 j 14:12	11°859'13		conjunction	-324 May 14 j 15:44	18°827'17	-8°-48'-13
opposition	-332 Nov 07 j 00:50	10°858'58	-11°-3'-49	minimum elong	-324 May 14 j 15:55	18°827'18	8°48'15
min. Earth dist.	-332 Nov 07 j 17:37	10°858'09	46.35840 AU	retrograde	-324 Aug 24 j 23:27	19°859'37	
direct	-331 Jan 27 j 16:51	9°858'54		opposition	-324 Nov 14 j 20:04	18°858'48	-9°-3'-21
				min. Earth dist.	-324 Nov 15 j 22:40	18°857'30	45.28264 AU
conjunction	-331 May 07 j 14:42	11°827'29	-10°-29'-48	direct	-323 Feb 04 j 09:08	17°857'54	
minimum elong	-331 May 07 j 14:53	11°827'30	10°29'49				
max. Earth dist.	-331 May 06 j 19:13	11°826'22	48.26288 AU	conjunction	-323 May 15 j 23:20	19°828'41	-8°-32'-43
retrograde	-331 Aug 17 j 21:14	12°858'15		minimum elong	-323 May 15 j 23:31	19°828'42	8°32'43
opposition	-331 Nov 08 j 05:58	11°857'55	-10°-49'-43	max. Earth dist.	-323 May 14 j 17:45	19°826'57	47.18379 AU
min. Earth dist.	-331 Nov 09 j 00:27	11°857'01	46.23532 AU	retrograde	-323 Aug 26 j 03:59	21°801'15	
direct	-330 Jan 28 j 21:19	10°857'44		opposition	-323 Nov 16 j 02:01	20°800'19	-8°-47'-7
				min. Earth dist.	-323 Nov 17 j 05:35	19°858'58	45.12849 AU
conjunction	-330 May 08 j 21:24	12°826'32	-10°-16'-4	direct	-322 Feb 05 j 18:22	18°859'16	
minimum elong	-330 May 08 j 21:36	12°826'33	10°16'04	max. Earth dist.	-322 May 15 j 22:55	20°828'28	47.02874 AU
max. Earth dist.	-330 May 08 j 01:16	12°825'22	48.13995 AU				
retrograde	-330 Aug 19 j 05:16	13°857'28		conjunction	-322 May 17 j 07:01	20°830'22	-8°-16'-58
opposition	-330 Nov 09 j 10:56	12°857'02	-10°-35'-20	minimum elong	-322 May 17 j 07:11	20°830'22	8°16'59
min. Earth dist.	-330 Nov 10 j 05:24	12°856'09	46.10945 AU	retrograde	-322 Aug 27 j 10:42	22°803'11	
direct	-329 Jan 30 j 00:47	11°856'45		opposition	-322 Nov 17 j 07:55	21°802'07	-8°-30'-38
max. Earth dist.	-329 May 09 j 05:58	13°824'31	48.01421 AU	min. Earth dist.	-322 Nov 18 j 12:49	21°800'42	44.96974 AU
				direct	-321 Feb 07 j 00:49	20°800'55	
conjunction	-329 May 10 j 04:05	13°825'48	-10°-2'-4	max. Earth dist.	-321 May 17 j 05:43	21°830'20	46.86915 AU
minimum elong	-329 May 10 j 04:16	13°825'48	10°02'05				
retrograde	-329 Aug 20 j 12:10	14°856'55		conjunction	-321 May 18 j 14:54	21°832'18	-8°00'-58
opposition	-329 Nov 10 j 16:16	13°856'25	-10°-20'-40	minimum elong	-321 May 18 j 15:04	21°832'19	8°00'58
min. Earth dist.	-329 Nov 11 j 12:29	13°855'27	45.98090 AU	retrograde	-321 Aug 28 j 17:22	23°805'23	
direct	-328 Jan 31 j 05:32	12°856'03		opposition	-321 Nov 18 j 14:08	22°804'11	-8°-13'-52
				min. Earth dist.	-321 Nov 19 j 20:46	22°802'40	44.80676 AU
conjunction	-328 May 10 j 10:51	14°825'20	-9°-47'-48	direct	-320 Feb 08 j 07:28	21°802'48	
minimum elong	-328 May 10 j 11:02	14°825'21	9°47'50				
max. Earth dist.	-328 May 09 j 12:44	14°824'03	47.88574 AU	conjunction	-320 May 18 j 22:37	22°834'29	-7°-44'-42
	-328 Jun 04 j 23:01	15°8		minimum elong	-320 May 18 j 22:47	22°834'30	7°44'43
retrograde	-328 Aug 20 j 15:31	15°856'40		max. Earth dist.	-320 May 17 j 12:34	22°832'28	46.70580 AU
	-328 Nov 07 j 13:54	15°8		retrograde	-320 Aug 29 j 03:22	24°807'50	
opposition	-328 Nov 10 j 21:37	14°856'08	-10°-5'-44	opposition	-320 Nov 18 j 20:18	23°806'29	-7°-56'-50
min. Earth dist.	-328 Nov 11 j 18:24	14°855'07	45.84937 AU	min. Earth dist.	-320 Nov 20 j 03:06	23°804'58	44.64032 AU
direct	-327 Jan 31 j 13:53	13°855'40		direct	-319 Feb 08 j 11:25	22°804'55	
	-327 Apr 23 j 09:42	15°8		max. Earth dist.	-319 May 18 j 18:34	23°834'48	46.53909 AU
conjunction	-327 May 11 j 17:45	15°825'14	-9°-33'-17	conjunction	-319 May 20 j 06:35	23°836'56	-7°-28'-10
minimum elong	-327 May 11 j 17:55	15°825'15	9°33'18	minimum elong	-319 May 20 j 06:45	23°836'57	7°28'11



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 6

Attention, astronomical year style is used: The year -319 in astronomical counting style is the year 320 BCE in historical counting style.

retrograde	-319 Aug 30 j 12:51	25° <b>8</b> 10'34		conjunction	-311 May 29 j 05:09	2° <b>II</b> 10'57	-5°-6'-9
opposition	-319 Nov 20 j 02:38	24° <b>8</b> 09'04	-7°-39'-30	minimum elong	-311 May 29 j 05:17	2° <b>II</b> 10'58	5°06'10
min. Earth dist.	-319 Nov 21 j 11:21	24° <b>8</b> 07'27	44.47093 AU	retrograde	-311 Sep 08 j 05:03	3° <b>II</b> 47'27	
direct	-318 Feb 09 j 15:44	23° <b>8</b> 07'18		opposition	-311 Nov 28 j 11:31	2° <b>II</b> 44'48	-5°-10'-29
max. Earth dist.	-318 May 20 j 02:44	24° <b>8</b> 37'32	46.36966 AU	min. Earth dist.	-311 Nov 30 j 05:03	2° <b>II</b> 42'41	43.01083 AU
				direct	-310 Feb 18 j 05:44	1° <b>II</b> 41'33	
conjunction	-318 May 21 j 14:50	24° <b>8</b> 39'41	-7°-11'-23	max. Earth dist.	-310 May 28 j 16:01	3° <b>II</b> 14'30	44.90497 AU
minimum elong	-318 May 21 j 14:59	24° <b>8</b> 39'42	7°11'24				
retrograde	-318 Aug 31 j 18:09	26° <b>8</b> 13'35		conjunction	-310 May 30 j 14:59	3° <b>II</b> 17'23	-4°-47'-11
opposition	-318 Nov 21 j 09:08	25° <b>8</b> 11'57	-7°-21'-53	minimum elong	-310 May 30 j 15:06	3° <b>II</b> 17'24	4°47'12
min. Earth dist.	-318 Nov 22 j 18:06	25° <b>8</b> 10'18	44.29890 AU	retrograde	-310 Sep 09 j 15:23	4° <b>II</b> 54'17	
direct	-317 Feb 11 j 01:21	24° <b>8</b> 10'00		opposition	-310 Nov 29 j 19:25	3° <b>II</b> 51'27	-4°-50'-34
max. Earth dist.	-317 May 21 j 08:58	25° <b>8</b> 40'29	46.19779 AU	min. Earth dist.	-310 Dec 01 j 13:27	3° <b>II</b> 49'19	42.81060 AU
				direct	-309 Feb 19 j 12:30	2° <b>II</b> 47'58	
conjunction	-317 May 22 j 22:59	25° <b>8</b> 42'46	-6°-54'-18	max. Earth dist.	-309 May 29 j 23:58	4° <b>II</b> 21'17	44.70371 AU
minimum elong	-317 May 22 j 23:08	25° <b>8</b> 42'46	6°54'19				
retrograde	-317 Sep 02 j 00:33	27° <b>8</b> 16'58		conjunction	-309 Jun 01 j 00:54	4° <b>II</b> 24'18	-4°-27'-58
opposition	-317 Nov 22 j 15:44	26° <b>8</b> 15'12	-7°-3'-59	minimum elong	-309 Jun 01 j 01:01	4° <b>II</b> 24'18	4°27'59
min. Earth dist.	-317 Nov 24 j 01:34	26° <b>8</b> 13'30	44.12465 AU	retrograde	-309 Sep 11 j 03:05	6° <b>II</b> 01'38	
direct	-316 Feb 12 j 09:33	25° <b>8</b> 13'05		opposition	-309 Dec 01 j 03:37	4° <b>II</b> 58'36	-4°-30'-22
max. Earth dist.	-316 May 21 j 16:57	26° <b>8</b> 43'55	46.02356 AU	min. Earth dist.	-309 Dec 02 j 23:48	4° <b>II</b> 56'20	42.60667 AU
				direct	-308 Feb 20 j 17:50	3° <b>II</b> 54'52	
conjunction	-316 May 23 j 07:28	26° <b>8</b> 46'13	-6°-36'-57	max. Earth dist.	-308 May 30 j 09:56	5° <b>II</b> 28'39	44.49913 AU
minimum elong	-316 May 23 j 07:36	26° <b>8</b> 46'14	6°36'58				
retrograde	-316 Sep 02 j 07:35	28° <b>8</b> 20'47		conjunction	-308 Jun 01 j 11:06	5° <b>II</b> 31'42	-4°-8'-28
opposition	-316 Nov 22 j 22:36	27° <b>8</b> 18'52	-6°-45'-47	minimum elong	-308 Jun 01 j 11:12	5° <b>II</b> 31'42	4°08'28
min. Earth dist.	-316 Nov 24 j 09:53	27° <b>8</b> 17'06	43.94796 AU	retrograde	-308 Sep 11 j 12:20	7° <b>II</b> 09'28	
direct	-315 Feb 12 j 16:54	26° <b>8</b> 16'36		opposition	-308 Dec 01 j 11:52	6° <b>II</b> 06'13	-4°-9'-52
max. Earth dist.	-315 May 23 j 00:34	27° <b>8</b> 47'46	45.84689 AU	min. Earth dist.	-308 Dec 03 j 08:11	6° <b>II</b> 03'57	42.39972 AU
				direct	-307 Feb 21 j 03:51	5° <b>II</b> 02'15	
conjunction	-315 May 24 j 16:03	27° <b>8</b> 50'08	-6°-19'-20	max. Earth dist.	-307 May 31 j 18:01	6° <b>II</b> 36'25	44.29174 AU
minimum elong	-315 May 24 j 16:13	27° <b>8</b> 50'09	6°19'21				
retrograde	-315 Sep 03 j 17:21	29° <b>8</b> 25'04		conjunction	-307 Jun 02 j 21:20	6° <b>II</b> 39'37	-3°-48'-41
opposition	-315 Nov 24 j 05:30	28° <b>8</b> 23'02	-6°-27'-17	minimum elong	-307 Jun 02 j 21:25	6° <b>II</b> 39'37	3°48'42
min. Earth dist.	-315 Nov 25 j 16:58	28° <b>8</b> 21'15	43.76853 AU	retrograde	-307 Sep 12 j 22:26	8° <b>II</b> 17'50	
direct	-314 Feb 13 j 22:19	27° <b>8</b> 20'35		opposition	-307 Dec 02 j 20:26	7° <b>II</b> 14'23	-3°-49'-4
max. Earth dist.	-314 May 24 j 07:26	28° <b>8</b> 52'03	45.66692 AU	min. Earth dist.	-307 Dec 04 j 18:05	7° <b>II</b> 12'02	42.19034 AU
				direct	-306 Feb 22 j 13:26	6° <b>II</b> 10'09	
conjunction	-314 May 26 j 01:00	28° <b>8</b> 54'34	-6°-1'-26	max. Earth dist.	-306 Jun 02 j 04:33	7° <b>II</b> 44'51	44.08196 AU
minimum elong	-314 May 26 j 01:08	28° <b>8</b> 54'34	6°01'26				
	-314 Jul 14 j 12:03	0° <b>II</b>		conjunction	-306 Jun 04 j 08:02	7° <b>II</b> 48'05	-3°-28'-38
retrograde	-314 Sep 05 j 04:25	0° <b>II</b> 29'53		minimum elong	-306 Jun 04 j 08:08	7° <b>II</b> 48'05	3°28'37
	-314 Oct 28 j 08:19	30° <b>R</b> <b>8</b>		retrograde	-306 Sep 14 j 06:27	9° <b>II</b> 26'47	
opposition	-314 Nov 25 j 12:40	29° <b>8</b> 27'42	-6°-8'-31	opposition	-306 Dec 04 j 05:14	8° <b>II</b> 23'08	-3°-27'-58
min. Earth dist.	-314 Nov 27 j 02:20	29° <b>8</b> 25'49	43.58559 AU	min. Earth dist.	-306 Dec 06 j 03:52	8° <b>II</b> 20'43	41.97884 AU
direct	-313 Feb 15 j 03:35	28° <b>8</b> 25'05		direct	-305 Feb 24 j 00:18	7° <b>II</b> 18'40	
max. Earth dist.	-313 May 25 j 16:22	29° <b>8</b> 56'59	45.48312 AU	max. Earth dist.	-305 Jun 03 j 14:07	8° <b>II</b> 53'50	43.87042 AU
conjunction	-313 May 27 j 10:17	29° <b>8</b> 59'31	-5°-43'-16	conjunction	-305 Jun 05 j 18:49	8° <b>II</b> 57'09	-3°-8'-17
minimum elong	-313 May 27 j 10:25	29° <b>8</b> 59'32	5°43'17	minimum elong	-305 Jun 05 j 18:54	8° <b>II</b> 57'09	3°08'18
	-313 May 27 j 18:09	0° <b>II</b>		retrograde	-305 Sep 15 j 17:04	10° <b>II</b> 36'22	
retrograde	-313 Sep 06 j 13:09	1° <b>II</b> 35'13		opposition	-305 Dec 05 j 14:16	9° <b>II</b> 32'32	-3°-6'-34
opposition	-313 Nov 26 j 20:06	0° <b>II</b> 32'54	-5°-49'-27	min. Earth dist.	-305 Dec 07 j 12:58	9° <b>II</b> 30'06	41.76578 AU
min. Earth dist.	-313 Nov 28 j 10:24	0° <b>II</b> 30'58	43.39848 AU	direct	-304 Feb 25 j 08:28	8° <b>II</b> 27'49	
	-313 Dec 25 j 10:20	30° <b>R</b> <b>8</b>		max. Earth dist.	-304 Jun 03 j 23:48	10° <b>II</b> 03'29	43.65712 AU
direct	-312 Feb 16 j 12:21	29° <b>8</b> 30'05					
	-312 Apr 08 j 23:10	0° <b>II</b>		conjunction	-304 Jun 06 j 05:45	10° <b>II</b> 06'54	-2°-47'-40
max. Earth dist.	-312 May 25 j 22:59	1° <b>II</b> 02'17	45.29494 AU	minimum elong	-304 Jun 06 j 05:50	10° <b>II</b> 06'54	2°47'41
				retrograde	-304 Sep 16 j 05:21	11° <b>II</b> 46'41	
conjunction	-312 May 27 j 19:27	1° <b>II</b> 04'59	-5°-24'-51	opposition	-304 Dec 05 j 23:43	10° <b>II</b> 42'39	-2°-44'-51
minimum elong	-312 May 27 j 19:34	1° <b>II</b> 05'00	5°24'51	min. Earth dist.	-304 Dec 08 j 00:05	10° <b>II</b> 40'07	41.55102 AU
retrograde	-312 Sep 06 j 22:36	2° <b>II</b> 41'05		direct	-303 Feb 25 j 15:24	9° <b>II</b> 37'42	
opposition	-312 Nov 27 j 03:44	1° <b>II</b> 38'36	-5°-30'-6	max. Earth dist.	-303 Jun 05 j 11:13	11° <b>II</b> 13'59	43.44207 AU
min. Earth dist.	-312 Nov 28 j 19:36	1° <b>II</b> 36'35	43.20696 AU				
direct	-311 Feb 16 j 19:59	0° <b>II</b> 35'35		conjunction	-303 Jun 07 j 17:13	11° <b>II</b> 17'25	-2°-26'-47
max. Earth dist.	-311 May 27 j 07:41	2° <b>II</b> 08'10	45.10211 AU	minimum elong	-303 Jun 07 j 17:17	11° <b>II</b> 17'25	2°26'48
				retrograde	-303 Sep 17 j 19:07	12° <b>II</b> 57'45	



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 7

Attention, astronomical year style is used: The year -303 in astronomical counting style is the year 304 BCE in historical counting style.

opposition	-303 Dec 07 j 09:09	11°II53'32	-2°-22'-51	opposition	-295 Dec 17 j 01:10	21°II49'18	0°43'43
min. Earth dist.	-303 Dec 09 j 09:37	11°II51'00	41.33425 AU	min. Earth dist.	-295 Dec 19 j 10:57	21°II46'10	39.48345 AU
direct	-302 Feb 26 j 23:31	10°II48'22		direct	-294 Mar 08 j 16:14	20°II41'39	
max. Earth dist.	-302 Jun 06 j 20:39	12°II25'09	43.22459 AU	max. Earth dist.	-294 Jun 16 j 21:08	22°II23'22	41.36290 AU
conjunction	-302 Jun 09 j 04:57	12°II28'45	-2°-5'-36	conjunction	-294 Jun 19 j 14:59	22°II27'48	0°53'22
minimum elong	-302 Jun 09 j 05:00	12°II28'45	2°05'37	minimum elong	-294 Jun 19 j 14:57	22°II27'48	0°53'22
retrograde	-302 Sep 19 j 08:33	14°II09'40		retrograde	-294 Sep 29 j 13:37	24°II13'49	
opposition	-302 Dec 08 j 19:04	13°II05'16	-2°00'-33	opposition	-294 Dec 18 j 13:48	23°II07'17	1°08'19
min. Earth dist.	-302 Dec 10 j 21:20	13°II02'38	41.11488 AU	min. Earth dist.	-294 Dec 21 j 00:48	23°II04'04	39.24062 AU
direct	-301 Feb 28 j 08:09	11°II59'51		direct	-293 Mar 10 j 05:48	21°II59'18	
max. Earth dist.	-301 Jun 08 j 08:22	13°II37'16	43.00396 AU	max. Earth dist.	-293 Jun 18 j 11:21	23°II41'46	41.11938 AU
conjunction	-301 Jun 10 j 17:02	13°II40'55	-1°-44'-10	conjunction	-293 Jun 21 j 05:36	23°II46'15	1°16'53
minimum elong	-301 Jun 10 j 17:05	13°II40'55	1°44'10	minimum elong	-293 Jun 21 j 05:33	23°II46'15	1°16'54
retrograde	-301 Sep 20 j 18:06	15°II22'25		retrograde	-293 Oct 01 j 04:16	25°II33'00	
opposition	-301 Dec 10 j 05:20	14°II17'49	-1°-37'-57	opposition	-293 Dec 20 j 02:38	24°II26'12	1°33'11
min. Earth dist.	-301 Dec 12 j 08:37	14°II15'06	40.89207 AU	min. Earth dist.	-293 Dec 22 j 13:21	24°II22'58	38.99698 AU
direct	-300 Feb 29 j 21:07	13°II12'08		direct	-292 Mar 10 j 17:22	23°II17'52	
max. Earth dist.	-300 Jun 08 j 18:49	14°II50'05	42.77980 AU	max. Earth dist.	-292 Jun 19 j 00:56	25°II01'03	40.87496 AU
conjunction	-300 Jun 11 j 05:24	14°II53'54	-1°-22'-27	conjunction	-292 Jun 21 j 20:44	25°II05'41	1°40'39
minimum elong	-300 Jun 11 j 05:27	14°II53'54	1°22'28	minimum elong	-292 Jun 21 j 20:41	25°II05'40	1°40'39
retrograde	-300 Sep 21 j 05:24	16°II36'00		retrograde	-292 Oct 01 j 20:46	26°II53'13	
opposition	-300 Dec 10 j 15:47	15°II31'11	-1°-15'-3	opposition	-292 Dec 20 j 15:56	25°II46'08	1°58'20
min. Earth dist.	-300 Dec 12 j 19:56	15°II28'24	40.66567 AU	min. Earth dist.	-292 Dec 23 j 04:20	25°II42'48	38.75269 AU
direct	-299 Mar 02 j 08:22	14°II25'13		direct	-291 Mar 12 j 03:26	24°II37'28	
max. Earth dist.	-299 Jun 10 j 06:03	16°II03'44	42.55164 AU	max. Earth dist.	-291 Jun 20 j 16:49	26°II21'33	40.62980 AU
conjunction	-299 Jun 12 j 18:14	16°II07'39	-1°00'-28	conjunction	-291 Jun 23 j 12:24	26°II26'11	2°04'39
minimum elong	-299 Jun 12 j 18:16	16°II07'40	1°00'29	minimum elong	-291 Jun 23 j 12:20	26°II26'11	2°04'40
retrograde	-299 Sep 22 j 17:16	17°II50'24		retrograde	-291 Oct 03 j 13:12	28°II14'33	
opposition	-299 Dec 12 j 02:45	16°II45'19	0°-51'-52	opposition	-291 Dec 22 j 05:38	27°II07'11	2°23'43
min. Earth dist.	-299 Dec 14 j 09:02	16°II42'25	40.43531 AU	min. Earth dist.	-291 Dec 24 j 18:02	27°II03'50	38.50744 AU
direct	-298 Mar 03 j 17:54	15°II39'03		direct	-290 Mar 13 j 18:00	25°II58'11	
max. Earth dist.	-298 Jun 11 j 18:24	17°II18'11	42.31972 AU	max. Earth dist.	-290 Jun 22 j 06:51	27°II43'03	40.38337 AU
conjunction	-298 Jun 14 j 07:25	17°II22'11	0°-38'-14	conjunction	-290 Jun 25 j 04:25	27°II47'52	2°28'53
minimum elong	-298 Jun 14 j 07:26	17°II22'11	0°38'15	minimum elong	-290 Jun 25 j 04:21	27°II47'51	2°28'53
retrograde	-298 Sep 24 j 06:44	19°II05'32		retrograde	-290 Oct 05 j 07:37	29°II37'04	
opposition	-298 Dec 13 j 13:48	18°II00'11	0°-28'-24	opposition	-290 Dec 23 j 19:44	28°II29'26	2°49'22
min. Earth dist.	-298 Dec 15 j 20:19	17°II57'16	40.20138 AU	min. Earth dist.	-290 Dec 26 j 09:23	28°II26'00	38.26088 AU
direct	-297 Mar 05 j 04:36	16°II53'36		direct	-289 Mar 15 j 07:57	27°II20'07	
max. Earth dist.	-297 Jun 13 j 05:27	18°II33'16	42.08429 AU	max. Earth dist.	-289 Jun 23 j 23:16	29°II05'54	40.13509 AU
conjunction	-297 Jun 15 j 20:48	18°II37'27	0°-15'-44	conjunction	-289 Jun 26 j 21:05	29°II10'46	2°53'19
minimum elong	-297 Jun 15 j 20:48	18°II37'27	0°15'44	minimum elong	-289 Jun 26 j 21:00	29°II10'46	2°53'20
retrograde	-297 Sep 25 j 22:34	20°II21'26		retrograde	-289 Jul 27 j 06:43	0°☾	
opposition	-297 Dec 15 j 01:21	19°II15'48	0°-4'-39	retrograde	-289 Oct 06 j 23:40	1°☾00'51	
min. Earth dist.	-297 Dec 17 j 09:45	19°II12'46	39.96441 AU		-289 Dec 20 j 04:34	30°R☿	
asc. node	-296 Feb 24 j 09:58	18°II10'10		opposition	-289 Dec 25 j 10:30	29°II52'57	3°15'15
direct	-296 Mar 05 j 14:26	18°II08'52		min. Earth dist.	-289 Dec 28 j 01:19	29°II49'25	38.01230 AU
max. Earth dist.	-296 Jun 13 j 19:09	19°II49'15	41.84597 AU	direct	-288 Mar 15 j 23:30	28°II43'17	
conjunction	-296 Jun 16 j 10:28	19°II53'27	0°07'06		-288 Jun 06 j 12:48	0°☾	
minimum elong	-296 Jun 16 j 10:27	19°II53'27	0°07'06	max. Earth dist.	-288 Jun 24 j 14:47	0°☾29'55	39.88464 AU
behind sun begin	-296 Jun 16 j 04:27	19°II53'05		conjunction	-288 Jun 27 j 13:58	0°☾34'55	3°17'58
behind sun end	-296 Jun 16 j 16:28	19°II53'49		minimum elong	-288 Jun 27 j 13:52	0°☾34'55	3°17'58
retrograde	-296 Sep 26 j 11:56	21°II38'05		retrograde	-288 Oct 07 j 15:56	2°☾25'54	
opposition	-296 Dec 15 j 13:11	20°II32'09	0°19'23	opposition	-288 Dec 26 j 01:36	1°☾17'42	3°41'22
min. Earth dist.	-296 Dec 17 j 22:06	20°II29'05	39.72483 AU	min. Earth dist.	-288 Dec 28 j 16:51	1°☾14'07	37.76145 AU
direct	-295 Mar 07 j 04:07	19°II24'52		direct	-287 Mar 17 j 14:16	0°☾07'39	
max. Earth dist.	-295 Jun 15 j 07:17	21°II05'52	41.60535 AU	max. Earth dist.	-287 Jun 26 j 06:46	1°☾55'09	39.63151 AU
conjunction	-295 Jun 18 j 00:27	21°II10'13	0°30'05	conjunction	-287 Jun 29 j 07:37	2°☾00'19	3°42'50
minimum elong	-295 Jun 18 j 00:27	21°II10'13	0°30'06	minimum elong	-287 Jun 29 j 07:30	2°☾00'18	3°42'50
retrograde	-295 Sep 28 j 02:00	22°II55'32		retrograde	-287 Oct 09 j 08:42	3°☾52'12	



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 8

Attention, astronomical year style is used: The year -287 in astronomical counting style is the year 288 BCE in historical counting style.

opposition	-287 Dec 27 j 17:13	2°☾43'40	4°07'43	max. Earth dist.	-278 Jul 10 j 13:39	15°☾39'32	37.30818 AU
min. Earth dist.	-287 Dec 30 j 10:27	2°☾39'58	37.50809 AU				
direct	-286 Mar 19 j 03:43	1°☾33'15		conjunction	-278 Jul 13 j 20:13	15°☾45'33	7°32'55
max. Earth dist.	-286 Jun 28 j 00:35	3°☾21'42	39.37601 AU	minimum elong	-278 Jul 13 j 19:58	15°☾45'32	7°32'55
				retrograde	-278 Oct 24 j 02:33	17°☾46'39	
conjunction	-286 Jul 01 j 01:44	3°☾26'55	4°07'53	opposition	-277 Jan 10 j 13:15	16°☾34'46	8°12'01
minimum elong	-286 Jul 01 j 01:37	3°☾26'55	4°07'52	min. Earth dist.	-277 Jan 13 j 11:00	16°☾30'35	35.19932 AU
retrograde	-286 Oct 11 j 03:23	5°☾19'44		direct	-277 Apr 01 j 16:46	15°☾20'25	
opposition	-286 Dec 29 j 09:20	4°☾10'52	4°34'17	max. Earth dist.	-277 Jul 12 j 13:15	17°☾18'31	37.05295 AU
min. Earth dist.	-285 Jan 01 j 02:31	4°☾07'08	37.25255 AU				
direct	-285 Mar 20 j 18:01	3°☾00'01		conjunction	-277 Jul 15 j 19:13	17°☾24'33	7°58'46
max. Earth dist.	-285 Jun 29 j 16:54	4°☾49'19	39.11836 AU	minimum elong	-277 Jul 15 j 18:57	17°☾24'31	7°58'46
				retrograde	-277 Oct 26 j 02:42	19°☾26'50	
conjunction	-285 Jul 02 j 20:05	4°☾54'44	4°33'06	opposition	-276 Jan 12 j 10:39	18°☾14'35	8°39'31
minimum elong	-285 Jul 02 j 19:56	4°☾54'43	4°33'06	min. Earth dist.	-276 Jan 15 j 08:48	18°☾10'20	34.94652 AU
retrograde	-285 Oct 12 j 23:29	6°☾48'30		direct	-276 Apr 02 j 15:07	16°☾59'48	
opposition	-285 Dec 31 j 01:56	5°☾39'15	5°01'03	max. Earth dist.	-276 Jul 13 j 11:44	18°☾59'05	36.79809 AU
min. Earth dist.	-284 Jan 02 j 20:48	5°☾35'25	36.99537 AU				
direct	-284 Mar 21 j 08:55	4°☾27'59		conjunction	-276 Jul 16 j 18:54	19°☾05'15	8°24'36
max. Earth dist.	-284 Jun 30 j 12:07	6°☾18'19	38.85921 AU	minimum elong	-276 Jul 16 j 18:37	19°☾05'14	8°24'37
				retrograde	-276 Oct 27 j 04:32	21°☾08'45	
conjunction	-284 Jul 03 j 15:08	6°☾23'46	4°58'29	opposition	-275 Jan 13 j 08:30	19°☾56'07	9°07'00
minimum elong	-284 Jul 03 j 14:58	6°☾23'45	4°58'29	min. Earth dist.	-275 Jan 16 j 06:52	19°☾51'51	34.69411 AU
retrograde	-284 Oct 13 j 19:07	8°☾18'28		direct	-275 Apr 04 j 12:37	18°☾40'53	
opposition	-284 Dec 31 j 18:55	7°☾08'51	5°27'59	max. Earth dist.	-275 Jul 15 j 11:47	20°☾41'26	36.54320 AU
min. Earth dist.	-283 Jan 03 j 14:10	7°☾04'58	36.73707 AU				
direct	-283 Mar 23 j 04:08	5°☾57'09		conjunction	-275 Jul 18 j 19:30	20°☾47'43	8°50'23
max. Earth dist.	-283 Jul 02 j 06:00	7°☾48'24	38.59929 AU	minimum elong	-275 Jul 18 j 19:11	20°☾47'41	8°50'23
				retrograde	-275 Oct 29 j 03:51	22°☾52'25	
conjunction	-283 Jul 05 j 10:33	7°☾54'01	5°24'01	opposition	-274 Jan 15 j 07:23	21°☾39'24	9°34'25
minimum elong	-283 Jul 05 j 10:22	7°☾54'00	5°24'01	min. Earth dist.	-274 Jan 18 j 07:00	21°☾35'01	34.44174 AU
retrograde	-283 Oct 15 j 16:38	9°☾49'41		direct	-274 Apr 06 j 10:43	20°☾23'43	
opposition	-282 Jan 02 j 12:28	8°☾39'41	5°55'05	max. Earth dist.	-274 Jul 17 j 12:50	22°☾25'33	36.28850 AU
min. Earth dist.	-282 Jan 05 j 08:08	8°☾35'45	36.47851 AU				
direct	-282 Mar 24 j 22:25	7°☾27'31		conjunction	-274 Jul 20 j 20:37	22°☾31'54	9°16'04
max. Earth dist.	-282 Jul 04 j 01:52	9°☾19'51	38.33909 AU	minimum elong	-274 Jul 20 j 20:18	22°☾31'53	9°16'05
				retrograde	-274 Oct 31 j 05:06	24°☾37'51	
conjunction	-282 Jul 07 j 06:37	9°☾25'31	5°49'39	opposition	-273 Jan 17 j 06:48	23°☾24'26	10°01'46
minimum elong	-282 Jul 07 j 06:25	9°☾25'30	5°49'40	min. Earth dist.	-273 Jan 20 j 05:57	23°☾20'02	34.18974 AU
retrograde	-282 Oct 17 j 10:40	11°☾22'12		direct	-273 Apr 08 j 09:29	22°☾08'15	
opposition	-281 Jan 04 j 06:40	10°☾11'48	6°22'19	max. Earth dist.	-273 Jul 19 j 13:28	24°☾11'19	36.03417 AU
min. Earth dist.	-281 Jan 07 j 03:21	10°☾07'47	36.22019 AU				
direct	-281 Mar 26 j 16:51	8°☾59'11		conjunction	-273 Jul 22 j 22:28	24°☾17'50	9°41'38
max. Earth dist.	-281 Jul 05 j 22:15	10°☾52'35	38.07960 AU	minimum elong	-273 Jul 22 j 22:09	24°☾17'48	9°41'38
				retrograde	-273 Nov 02 j 07:11	26°☾25'03	
conjunction	-281 Jul 09 j 03:05	10°☾58'19	6°15'24	opposition	-272 Jan 19 j 07:02	25°☾11'12	10°28'58
minimum elong	-281 Jul 09 j 02:52	10°☾58'18	6°15'24	min. Earth dist.	-272 Jan 22 j 07:32	25°☾06'42	33.93861 AU
retrograde	-281 Oct 19 j 06:01	12°☾56'02		direct	-272 Apr 09 j 06:09	23°☾54'32	
opposition	-280 Jan 06 j 01:22	11°☾45'16	6°49'39	max. Earth dist.	-272 Jul 20 j 16:44	25°☾59'00	35.78094 AU
min. Earth dist.	-280 Jan 08 j 21:25	11°☾41'15	35.96299 AU				
direct	-280 Mar 27 j 11:00	10°☾32'13		conjunction	-272 Jul 24 j 00:57	26°☾05'30	10°07'01
max. Earth dist.	-280 Jul 06 j 18:11	12°☾26'40	37.82116 AU	minimum elong	-272 Jul 24 j 00:37	26°☾05'29	10°07'02
				retrograde	-272 Nov 03 j 09:47	28°☾14'00	
conjunction	-280 Jul 10 j 00:04	12°☾32'32	6°41'12	opposition	-271 Jan 20 j 07:56	26°☾59'43	10°55'59
minimum elong	-280 Jul 09 j 23:51	12°☾32'31	6°41'12	min. Earth dist.	-271 Jan 23 j 07:50	26°☾55'14	33.68882 AU
retrograde	-280 Oct 20 j 03:13	14°☾31'20		direct	-271 Apr 11 j 07:20	25°☾42'33	
opposition	-279 Jan 06 j 20:47	13°☾20'11	7°17'04	max. Earth dist.	-271 Jul 22 j 18:43	27°☾48'17	35.52932 AU
min. Earth dist.	-279 Jan 09 j 18:04	13°☾16'05	35.70714 AU				
direct	-279 Mar 29 j 02:47	12°☾06'41		conjunction	-271 Jul 26 j 04:07	27°☾54'58	10°32'12
max. Earth dist.	-279 Jul 08 j 16:42	14°☾02'23	37.56411 AU	minimum elong	-271 Jul 26 j 03:46	27°☾54'56	10°32'11
					-271 Oct 19 j 00:31	0°☾	
conjunction	-279 Jul 11 j 21:52	14°☾08'14	7°07'03	retrograde	-271 Nov 05 j 15:37	0°☾04'46	
minimum elong	-279 Jul 11 j 21:38	14°☾08'13	7°07'02		-271 Nov 23 j 08:08	30°☾	
retrograde	-279 Oct 22 j 01:20	16°☾08'10		opposition	-270 Jan 22 j 09:31	28°☾50'02	11°22'45
opposition	-278 Jan 08 j 16:37	14°☾56'39	7°44'32	min. Earth dist.	-270 Jan 25 j 09:56	28°☾45'29	33.44125 AU
min. Earth dist.	-278 Jan 11 j 13:21	14°☾52'33	35.45264 AU	direct	-270 Apr 13 j 07:33	27°☾32'21	
direct	-278 Mar 30 j 21:48	13°☾42'44		max. Earth dist.	-270 Jul 24 j 23:56	29°☾39'36	35.28011 AU



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 9

Attention, astronomical year style is used: The year -270 in astronomical counting style is the year 271 BCE in historical counting style.

conjunction	-270 Jul 28 j 08:06	29° <del>5</del> 46'14	10°57'05			-262 Jul 21 j 06:08	15° <del>0</del>	
minimum elong	-270 Jul 28 j 07:45	29° <del>5</del> 46'12	10°57'06	max. Earth dist.		-262 Aug 10 j 14:41	15° <del>0</del> 42'46	33.43207 AU
	-270 Aug 04 j 06:33	0° <del>0</del>						
retrograde	-270 Nov 07 j 19:40	1° <del>0</del> 57'21		conjunction		-262 Aug 13 j 19:14	15° <del>0</del> 49'38	13°58'58
opposition	-269 Jan 24 j 12:05	0° <del>0</del> 42'11	11°49'14	minimum elong		-262 Aug 13 j 18:51	15° <del>0</del> 49'36	13°58'59
min. Earth dist.	-269 Jan 27 j 12:17	0° <del>0</del> 37'37	33.19654 AU	retrograde		-262 Nov 24 j 16:14	18° <del>0</del> 12'02	
	-269 Feb 22 j 19:23	30° <del>0</del> 5		opposition		-261 Feb 09 j 14:44	16° <del>0</del> 53'42	15°02'14
direct	-269 Apr 15 j 10:11	29° <del>5</del> 24'01		min. Earth dist.		-261 Feb 12 j 11:22	16° <del>0</del> 49'09	31.38993 AU
	-269 Jun 04 j 20:30	0° <del>0</del>		direct		-261 May 01 j 01:55	15° <del>0</del> 32'00	
max. Earth dist.	-269 Jul 27 j 04:04	1° <del>0</del> 32'38	35.03428 AU	max. Earth dist.		-261 Aug 13 j 03:23	17° <del>0</del> 52'53	33.21941 AU
conjunction	-269 Jul 30 j 12:26	1° <del>0</del> 39'21	11°21'38	conjunction		-261 Aug 16 j 06:20	17° <del>0</del> 59'40	14°18'40
minimum elong	-269 Jul 30 j 12:04	1° <del>0</del> 39'19	11°21'37	minimum elong		-261 Aug 16 j 05:56	17° <del>0</del> 59'38	14°18'39
retrograde	-269 Nov 10 j 02:34	3° <del>0</del> 51'50		retrograde		-261 Nov 27 j 03:26	20° <del>0</del> 23'28	
opposition	-268 Jan 26 j 15:19	2° <del>0</del> 36'14	12°15'20	opposition		-260 Feb 12 j 01:15	19° <del>0</del> 04'43	15°23'03
min. Earth dist.	-268 Jan 29 j 14:45	2° <del>0</del> 31'41	32.95570 AU	min. Earth dist.		-260 Feb 14 j 21:42	19° <del>0</del> 00'09	31.18249 AU
direct	-268 Apr 16 j 12:54	1° <del>0</del> 17'35		direct		-260 May 02 j 12:02	17° <del>0</del> 42'34	
max. Earth dist.	-268 Jul 28 j 10:14	3° <del>0</del> 27'42	34.79238 AU	max. Earth dist.		-260 Aug 14 j 15:38	20° <del>0</del> 04'54	33.01143 AU
conjunction	-268 Jul 31 j 17:52	3° <del>0</del> 34'26	11°45'47	conjunction		-260 Aug 17 j 18:11	20° <del>0</del> 11'43	14°37'28
minimum elong	-268 Jul 31 j 17:29	3° <del>0</del> 34'24	11°45'47	minimum elong		-260 Aug 17 j 17:48	20° <del>0</del> 11'41	14°37'28
retrograde	-268 Nov 11 j 08:16	5° <del>0</del> 48'16		retrograde		-260 Nov 28 j 17:42	22° <del>0</del> 36'51	
opposition	-267 Jan 27 j 19:23	4° <del>0</del> 32'16	12°40'59	opposition		-259 Feb 13 j 12:19	21° <del>0</del> 17'42	15°42'52
min. Earth dist.	-267 Jan 30 j 19:07	4° <del>0</del> 27'40	32.71912 AU	min. Earth dist.		-259 Feb 16 j 07:22	21° <del>0</del> 13'12	30.97995 AU
direct	-267 Apr 18 j 16:29	3° <del>0</del> 13'10		direct		-259 May 04 j 23:10	19° <del>0</del> 55'06	
max. Earth dist.	-267 Jul 30 j 17:08	5° <del>0</del> 24'48	34.55509 AU	max. Earth dist.		-259 Aug 17 j 05:33	22° <del>0</del> 18'56	32.80860 AU
conjunction	-267 Aug 03 j 00:00	5° <del>0</del> 31'32	12°09'28	conjunction		-259 Aug 20 j 06:56	22° <del>0</del> 25'42	14°55'16
minimum elong	-267 Aug 02 j 23:37	5° <del>0</del> 31'30	12°09'27	minimum elong		-259 Aug 20 j 06:34	22° <del>0</del> 25'40	14°55'16
retrograde	-267 Nov 13 j 16:32	7° <del>0</del> 46'47		retrograde		-259 Dec 01 j 07:06	24° <del>0</del> 52'11	
opposition	-266 Jan 30 j 00:17	6° <del>0</del> 30'23	13°06'08	opposition		-258 Feb 16 j 00:34	23° <del>0</del> 32'36	16°01'37
min. Earth dist.	-266 Feb 01 j 22:32	6° <del>0</del> 25'51	32.48718 AU	min. Earth dist.		-258 Feb 18 j 19:32	23° <del>0</del> 28'05	30.78288 AU
direct	-266 Apr 20 j 20:30	5° <del>0</del> 10'50		direct		-258 May 07 j 10:33	22° <del>0</del> 09'34	
max. Earth dist.	-266 Aug 02 j 00:11	7° <del>0</del> 23'59	34.32224 AU	max. Earth dist.		-258 Aug 19 j 20:28	24° <del>0</del> 34'54	32.61193 AU
conjunction	-266 Aug 05 j 06:57	7° <del>0</del> 30'46	12°32'38	conjunction		-258 Aug 22 j 20:09	24° <del>0</del> 41'34	15°12'01
minimum elong	-266 Aug 05 j 06:33	7° <del>0</del> 30'44	12°32'39	minimum elong		-258 Aug 22 j 19:48	24° <del>0</del> 41'32	15°12'01
retrograde	-266 Nov 15 j 22:44	9° <del>0</del> 47'27		retrograde		-258 Dec 03 j 22:07	27° <del>0</del> 09'21	
opposition	-265 Feb 01 j 06:12	8° <del>0</del> 30'41	13°30'43	opposition		-257 Feb 18 j 13:33	25° <del>0</del> 49'23	16°19'10
min. Earth dist.	-265 Feb 04 j 05:04	8° <del>0</del> 26'05	32.25973 AU	min. Earth dist.		-257 Feb 21 j 06:14	25° <del>0</del> 44'59	30.59223 AU
direct	-265 Apr 22 j 23:25	7° <del>0</del> 10'43		direct		-257 May 09 j 23:41	24° <del>0</del> 25'54	
max. Earth dist.	-265 Aug 04 j 09:34	9° <del>0</del> 25'28	34.09384 AU	max. Earth dist.		-257 Aug 22 j 11:36	26° <del>0</del> 52'41	32.42216 AU
conjunction	-265 Aug 07 j 14:45	9° <del>0</del> 32'12	12°55'13	conjunction		-257 Aug 25 j 10:09	26° <del>0</del> 59'18	15°27'35
minimum elong	-265 Aug 07 j 14:21	9° <del>0</del> 32'10	12°55'13	minimum elong		-257 Aug 25 j 09:48	26° <del>0</del> 59'16	15°27'34
retrograde	-265 Nov 18 j 06:39	11° <del>0</del> 50'19		retrograde		-257 Dec 06 j 11:42	29° <del>0</del> 28'22	
opposition	-264 Feb 03 j 12:53	10° <del>0</del> 33'11	13°54'41	opposition		-256 Feb 21 j 03:24	28° <del>0</del> 08'00	16°35'26
min. Earth dist.	-264 Feb 06 j 10:28	10° <del>0</del> 28'38	32.03650 AU	min. Earth dist.		-256 Feb 23 j 19:36	28° <del>0</del> 03'36	30.40896 AU
direct	-264 Apr 24 j 04:49	9° <del>0</del> 12'47		direct		-256 May 11 j 11:09	26° <del>0</del> 44'07	
max. Earth dist.	-264 Aug 05 j 17:33	11° <del>0</del> 29'00	33.86944 AU	max. Earth dist.		-256 Aug 24 j 05:05	29° <del>0</del> 12'27	32.24042 AU
conjunction	-264 Aug 08 j 23:19	11° <del>0</del> 35'51	13°17'11	conjunction		-256 Aug 27 j 00:50	29° <del>0</del> 18'52	15°41'53
minimum elong	-264 Aug 08 j 22:56	11° <del>0</del> 35'49	13°17'12	minimum elong		-256 Aug 27 j 00:32	29° <del>0</del> 18'50	15°41'53
retrograde	-264 Nov 19 j 17:03	13° <del>0</del> 55'24				-256 Sep 14 j 08:29	0° <del>0</del> 7	
opposition	-263 Feb 04 j 20:35	12° <del>0</del> 37'52	14°17'58	retrograde		-256 Dec 08 j 02:45	1° <del>0</del> 49'11	
min. Earth dist.	-263 Feb 07 j 18:31	12° <del>0</del> 33'17	31.81720 AU	opposition		-255 Feb 22 j 18:06	0° <del>0</del> 28'28	16°50'19
direct	-263 Apr 26 j 08:50	11° <del>0</del> 17'03		min. Earth dist.		-255 Feb 25 j 07:48	0° <del>0</del> 24'13	30.23372 AU
max. Earth dist.	-263 Aug 08 j 04:47	13° <del>0</del> 34'54	33.64881 AU			-255 Mar 12 j 08:28	30° <del>0</del> 5	
conjunction	-263 Aug 11 j 08:57	13° <del>0</del> 41'40	13°38'27	direct		-255 May 14 j 01:20	29° <del>0</del> 04'13	
minimum elong	-263 Aug 11 j 08:33	13° <del>0</del> 41'38	13°38'27			-255 Jul 13 j 00:23	0° <del>0</del> 7	
	-263 Sep 19 j 04:10	15° <del>0</del>		max. Earth dist.		-255 Aug 26 j 21:27	1° <del>0</del> 33'55	32.06721 AU
retrograde	-263 Nov 22 j 02:54	16° <del>0</del> 02'39		conjunction		-255 Aug 29 j 16:11	1° <del>0</del> 40'17	15°54'50
	-262 Jan 28 j 12:41	15° <del>0</del> 5		minimum elong		-255 Aug 29 j 15:53	1° <del>0</del> 40'15	15°54'49
opposition	-262 Feb 07 j 05:11	14° <del>0</del> 44'44	14°40'31	retrograde		-255 Dec 10 j 19:24	4° <del>0</del> 7	11'52
min. Earth dist.	-262 Feb 10 j 02:22	14° <del>0</del> 40'10	31.60154 AU	opposition		-254 Feb 25 j 09:38	2° <del>0</del> 50'48	17°03'41
direct	-262 Apr 28 j 16:49	13° <del>0</del> 23'29		min. Earth dist.		-254 Feb 27 j 22:03	2° <del>0</del> 46'38	30.06720 AU



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 10

Attention, astronomical year style is used: The year -254 in astronomical counting style is the year 255 BCE in historical counting style.

direct	-254 May 16 j 13:35	1° $\mathring{M}$ 26'15		conjunction	-246 Sep 21 j 12:52	24° $\mathring{M}$ 08'53	16°39'51
max. Earth dist.	-254 Aug 29 j 16:52	3° $\mathring{M}$ 57'30	31.90308 AU	minimum elong	-246 Sep 21 j 12:53	24° $\mathring{M}$ 08'53	16°39'51
				retrograde	-245 Jan 03 j 02:13	26° $\mathring{M}$ 48'47	
conjunction	-254 Sep 01 j 08:19	4° $\mathring{M}$ 03'36	16°06'20	opposition	-245 Mar 20 j 14:43	25° $\mathring{M}$ 25'40	17°46'09
minimum elong	-254 Sep 01 j 08:04	4° $\mathring{M}$ 03'34	16°06'21	min. Earth dist.	-245 Mar 22 j 08:30	25° $\mathring{M}$ 22'43	28.95481 AU
retrograde	-254 Dec 13 j 11:26	6° $\mathring{M}$ 36'23		direct	-245 Jun 08 j 13:03	23° $\mathring{M}$ 59'23	
opposition	-253 Feb 28 j 02:06	5° $\mathring{M}$ 15'03	17°15'30	max. Earth dist.	-245 Sep 22 j 15:41	26° $\mathring{M}$ 40'16	30.82522 AU
min. Earth dist.	-253 Mar 02 j 12:18	5° $\mathring{M}$ 11'01	29.90944 AU				
direct	-253 May 19 j 05:15	3° $\mathring{M}$ 50'14		conjunction	-245 Sep 24 j 08:53	26° $\mathring{M}$ 44'26	16°35'58
max. Earth dist.	-253 Sep 01 j 10:32	6° $\mathring{M}$ 22'46	31.74800 AU	minimum elong	-245 Sep 24 j 08:55	26° $\mathring{M}$ 44'26	16°35'58
				retrograde	-244 Jan 05 j 22:17	29° $\mathring{M}$ 24'46	
conjunction	-253 Sep 04 j 00:49	6° $\mathring{M}$ 28'48	16°16'21	opposition	-244 Mar 22 j 12:33	28° $\mathring{M}$ 01'29	17°41'11
minimum elong	-253 Sep 04 j 00:34	6° $\mathring{M}$ 28'46	16°16'20	min. Earth dist.	-244 Mar 24 j 02:44	27° $\mathring{M}$ 58'47	28.87729 AU
retrograde	-253 Dec 16 j 06:17	9° $\mathring{M}$ 02'46		direct	-244 Jun 10 j 11:54	26° $\mathring{M}$ 35'06	
opposition	-252 Mar 01 j 19:13	7° $\mathring{M}$ 41'10	17°25'40	max. Earth dist.	-244 Sep 24 j 14:15	29° $\mathring{M}$ 16'31	30.75430 AU
min. Earth dist.	-252 Mar 04 j 03:29	7° $\mathring{M}$ 37'15	29.76048 AU				
direct	-252 May 20 j 20:51	6° $\mathring{M}$ 16'06		conjunction	-244 Sep 26 j 05:03	29° $\mathring{M}$ 20'27	16°30'09
max. Earth dist.	-252 Sep 03 j 07:13	8° $\mathring{M}$ 50'05	31.60168 AU	minimum elong	-244 Sep 26 j 05:09	29° $\mathring{M}$ 20'28	16°30'08
					-244 Oct 12 j 15:26	0° $\mathring{M}$	
conjunction	-252 Sep 05 j 18:17	8° $\mathring{M}$ 55'51	16°24'48	retrograde	-243 Jan 07 j 19:34	2° $\mathring{M}$ 01'08	
minimum elong	-252 Sep 05 j 18:05	8° $\mathring{M}$ 55'49	16°24'48	opposition	-243 Mar 25 j 10:36	0° $\mathring{M}$ 37'43	17°34'07
retrograde	-252 Dec 17 j 23:43	11° $\mathring{M}$ 30'55		min. Earth dist.	-243 Mar 26 j 22:07	0° $\mathring{M}$ 35'13	28.81118 AU
opposition	-251 Mar 04 j 13:09	10° $\mathring{M}$ 09'05	17°34'09		-243 Apr 17 j 10:32	30° $\mathring{M}$	
min. Earth dist.	-251 Mar 06 j 20:04	10° $\mathring{M}$ 05'15	29.61982 AU	direct	-243 Jun 13 j 08:05	29° $\mathring{M}$ 11'16	
direct	-251 May 23 j 13:31	8° $\mathring{M}$ 43'48			-243 Aug 06 j 15:14	0° $\mathring{M}$	
max. Earth dist.	-251 Sep 06 j 02:34	11° $\mathring{M}$ 18'58	31.46402 AU	max. Earth dist.	-243 Sep 27 j 15:03	1° $\mathring{M}$ 53'19	30.69546 AU
conjunction	-251 Sep 08 j 12:13	11° $\mathring{M}$ 24'37	16°31'38	conjunction	-243 Sep 29 j 01:26	1° $\mathring{M}$ 56'49	16°22'22
minimum elong	-251 Sep 08 j 12:01	11° $\mathring{M}$ 24'36	16°31'37	minimum elong	-243 Sep 29 j 01:33	1° $\mathring{M}$ 56'49	16°22'22
retrograde	-251 Dec 20 j 20:30	14° $\mathring{M}$ 00'44		retrograde	-242 Jan 10 j 14:50	4° $\mathring{M}$ 37'45	
opposition	-250 Mar 07 j 07:53	12° $\mathring{M}$ 38'40	17°40'52	opposition	-242 Mar 28 j 09:04	3° $\mathring{M}$ 14'15	17°24'55
min. Earth dist.	-250 Mar 09 j 12:13	12° $\mathring{M}$ 35'01	29.48753 AU	min. Earth dist.	-242 Mar 29 j 17:08	3° $\mathring{M}$ 11'59	28.75690 AU
direct	-250 May 26 j 07:40	11° $\mathring{M}$ 13'11		direct	-242 Jun 16 j 06:49	1° $\mathring{M}$ 47'49	
max. Earth dist.	-250 Sep 09 j 00:00	13° $\mathring{M}$ 49'36	31.33479 AU				
				conjunction	-242 Oct 01 j 21:33	4° $\mathring{M}$ 33'25	16°12'38
conjunction	-250 Sep 11 j 06:43	13° $\mathring{M}$ 55'01	16°36'48	minimum elong	-242 Oct 01 j 21:44	4° $\mathring{M}$ 33'26	16°12'37
minimum elong	-250 Sep 11 j 06:36	13° $\mathring{M}$ 55'00	16°36'48	max. Earth dist.	-242 Sep 30 j 13:44	4° $\mathring{M}$ 30'11	30.64904 AU
retrograde	-250 Dec 23 j 15:49	16° $\mathring{M}$ 32'05		retrograde	-241 Jan 13 j 11:39	7° $\mathring{M}$ 14'32	
opposition	-249 Mar 10 j 03:29	15° $\mathring{M}$ 09'47	17°45'46	opposition	-241 Mar 31 j 07:38	5° $\mathring{M}$ 50'59	17°13'36
min. Earth dist.	-249 Mar 12 j 06:40	15° $\mathring{M}$ 06'12	29.36341 AU	min. Earth dist.	-241 Apr 01 j 12:12	5° $\mathring{M}$ 48'58	28.71489 AU
direct	-249 May 29 j 02:57	13° $\mathring{M}$ 44'08		direct	-241 Jun 19 j 04:09	4° $\mathring{M}$ 24'35	
max. Earth dist.	-249 Sep 11 j 20:55	16° $\mathring{M}$ 21'35	31.21429 AU				
				conjunction	-241 Oct 04 j 17:57	7° $\mathring{M}$ 10'11	16°00'56
conjunction	-249 Sep 14 j 01:41	16° $\mathring{M}$ 26'49	16°40'16	minimum elong	-241 Oct 04 j 18:09	7° $\mathring{M}$ 10'12	16°00'56
minimum elong	-249 Sep 14 j 01:34	16° $\mathring{M}$ 26'49	16°40'15	max. Earth dist.	-241 Oct 03 j 14:46	7° $\mathring{M}$ 07'25	30.61508 AU
retrograde	-249 Dec 26 j 12:43	19° $\mathring{M}$ 04'45		retrograde	-240 Jan 16 j 07:17	9° $\mathring{M}$ 51'23	
opposition	-248 Mar 11 j 23:22	17° $\mathring{M}$ 42'15	17°48'48	opposition	-240 Apr 02 j 06:13	8° $\mathring{M}$ 27'50	17°00'11
min. Earth dist.	-248 Mar 13 j 23:26	17° $\mathring{M}$ 38'52	29.24776 AU	min. Earth dist.	-240 Apr 03 j 08:02	8° $\mathring{M}$ 26'00	28.68478 AU
direct	-248 May 30 j 23:31	16° $\mathring{M}$ 16'24		direct	-240 Jun 21 j 02:02	7° $\mathring{M}$ 01'32	
max. Earth dist.	-248 Sep 13 j 18:52	18° $\mathring{M}$ 54'52	31.10254 AU				
				conjunction	-240 Oct 06 j 14:07	9° $\mathring{M}$ 46'59	15°47'20
conjunction	-248 Sep 15 j 21:11	18° $\mathring{M}$ 59'53	16°41'57	minimum elong	-240 Oct 06 j 14:22	9° $\mathring{M}$ 47'00	15°47'20
minimum elong	-248 Sep 15 j 21:08	18° $\mathring{M}$ 59'52	16°41'57	max. Earth dist.	-240 Oct 05 j 13:24	9° $\mathring{M}$ 44'28	30.59326 AU
retrograde	-248 Dec 28 j 08:40	21° $\mathring{M}$ 38'34		retrograde	-239 Jan 18 j 04:56	12° $\mathring{M}$ 28'10	
opposition	-247 Mar 14 j 20:05	20° $\mathring{M}$ 15'51	17°49'55	opposition	-239 Apr 05 j 04:54	11° $\mathring{M}$ 04'39	16°44'43
min. Earth dist.	-247 Mar 16 j 19:00	20° $\mathring{M}$ 12'33	29.14073 AU	min. Earth dist.	-239 Apr 06 j 02:47	11° $\mathring{M}$ 03'07	28.66635 AU
direct	-247 Jun 02 j 18:47	18° $\mathring{M}$ 49'51		direct	-239 Jun 23 j 23:54	9° $\mathring{M}$ 38'28	
max. Earth dist.	-247 Sep 16 j 17:26	21° $\mathring{M}$ 29'13	31.00008 AU				
				conjunction	-239 Oct 09 j 10:16	12° $\mathring{M}$ 23'41	15°31'52
conjunction	-247 Sep 18 j 16:53	21° $\mathring{M}$ 33'58	16°41'50	minimum elong	-239 Oct 09 j 10:31	12° $\mathring{M}$ 23'43	15°31'52
minimum elong	-247 Sep 18 j 16:50	21° $\mathring{M}$ 33'58	16°41'50	max. Earth dist.	-239 Oct 08 j 13:52	12° $\mathring{M}$ 21'37	30.58304 AU
retrograde	-247 Dec 31 j 06:33	24° $\mathring{M}$ 13'18		retrograde	-238 Jan 21 j 00:16	15° $\mathring{M}$ 04'46	
opposition	-246 Mar 17 j 17:09	22° $\mathring{M}$ 50'23	17°49'03	opposition	-238 Apr 08 j 03:48	13° $\mathring{M}$ 41'18	16°27'16
min. Earth dist.	-246 Mar 19 j 12:39	22° $\mathring{M}$ 47'19	29.04281 AU	min. Earth dist.	-238 Apr 08 j 23:22	13° $\mathring{M}$ 39'56	28.65902 AU
direct	-246 Jun 05 j 17:04	21° $\mathring{M}$ 24'14		direct	-238 Jun 26 j 23:00	12° $\mathring{M}$ 15'18	
max. Earth dist.	-246 Sep 19 j 15:50	24° $\mathring{M}$ 04'21	30.90733 AU				
				conjunction	-238 Oct 12 j 06:08	15° $\mathring{M}$ 00'09	15°14'35



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 11

Attention, astronomical year style is used: The year -238 in astronomical counting style is the year 239 BCE in historical counting style.

minimum elong	-238 Oct 12 j 06:26	15° <del>2</del> 00'10	15°14'35	minimum elong	-230 Nov 01 j 07:42	5° <del>0</del> 21'28	11°59'39
max. Earth dist.	-238 Oct 11 j 12:20	14° <del>2</del> 58'20	30.58413 AU	max. Earth dist.	-230 Nov 01 j 17:05	5° <del>0</del> 22'24	30.97572 AU
retrograde	-237 Jan 23 j 21:45	17° <del>2</del> 41'01		retrograde	-229 Feb 12 j 22:13	7° <del>0</del> 57'16	
opposition	-237 Apr 11 j 02:24	16° <del>2</del> 17'37	16°07'53	opposition	-229 May 02 j 04:42	6° <del>0</del> 34'57	12°32'57
min. Earth dist.	-237 Apr 11 j 17:48	16° <del>2</del> 16'32	28.66256 AU	min. Earth dist.	-229 May 01 j 18:42	6° <del>0</del> 35'38	29.06813 AU
direct	-237 Jun 29 j 21:59	14° <del>2</del> 51'47		direct	-229 Jul 21 j 05:50	5° <del>0</del> 11'08	
max. Earth dist.	-237 Oct 14 j 11:47	17° <del>2</del> 34'44	30.59598 AU				
conjunction	-237 Oct 15 j 01:51	17° <del>2</del> 36'10	14°55'34	conjunction	-229 Nov 03 j 22:47	7° <del>0</del> 48'18	11°29'22
minimum elong	-237 Oct 15 j 02:09	17° <del>2</del> 36'12	14°55'34	minimum elong	-229 Nov 03 j 23:11	7° <del>0</del> 48'20	11°29'22
retrograde	-236 Jan 26 j 17:12	20° <del>2</del> 16'43		max. Earth dist.	-229 Nov 04 j 10:56	7° <del>0</del> 49'29	31.07476 AU
opposition	-236 Apr 13 j 01:04	18° <del>2</del> 53'24	15°46'40	retrograde	-228 Feb 15 j 15:00	10° <del>0</del> 23'13	
min. Earth dist.	-236 Apr 13 j 14:28	18° <del>2</del> 52'28	28.67650 AU	opposition	-228 May 03 j 23:38	9° <del>0</del> 01'09	11°59'54
direct	-236 Jul 01 j 19:57	17° <del>2</del> 27'46		min. Earth dist.	-228 May 03 j 09:23	9° <del>0</del> 02'08	29.16886 AU
				direct	-228 Jul 23 j 00:08	7° <del>0</del> 37'42	
conjunction	-236 Oct 16 j 21:14	20° <del>2</del> 11'34	14°34'52	conjunction	-228 Nov 05 j 13:47	10° <del>0</del> 13'41	10°58'04
minimum elong	-236 Oct 16 j 21:35	20° <del>2</del> 11'36	14°34'51	minimum elong	-228 Nov 05 j 14:11	10° <del>0</del> 13'44	10°58'03
max. Earth dist.	-236 Oct 16 j 10:06	20° <del>2</del> 10'26	30.61842 AU	max. Earth dist.	-228 Nov 06 j 06:14	10° <del>0</del> 15'18	31.18476 AU
retrograde	-235 Jan 28 j 14:03	22° <del>2</del> 51'42		retrograde	-227 Feb 17 j 03:41	12° <del>0</del> 47'40	
opposition	-235 Apr 15 j 23:16	21° <del>2</del> 28'29	15°23'40	opposition	-227 May 06 j 18:05	11° <del>0</del> 25'53	11°25'49
min. Earth dist.	-235 Apr 16 j 08:36	21° <del>2</del> 27'50	28.70060 AU	min. Earth dist.	-227 May 06 j 01:32	11° <del>0</del> 27'00	29.28027 AU
direct	-235 Jul 04 j 20:24	20° <del>2</del> 03'03		direct	-227 Jul 25 j 18:59	10° <del>0</del> 02'49	
conjunction	-235 Oct 19 j 16:19	22° <del>2</del> 46'10	14°12'35	conjunction	-227 Nov 08 j 04:03	12° <del>0</del> 37'35	10°25'52
minimum elong	-235 Oct 19 j 16:40	22° <del>2</del> 46'12	14°12'35	minimum elong	-227 Nov 08 j 04:26	12° <del>0</del> 37'38	10°25'52
max. Earth dist.	-235 Oct 19 j 08:23	22° <del>2</del> 45'22	30.65108 AU	max. Earth dist.	-227 Nov 08 j 22:46	12° <del>0</del> 39'24	31.30517 AU
retrograde	-234 Jan 31 j 09:13	25° <del>2</del> 25'47			-226 Jan 25 j 21:21	15° <del>0</del>	
opposition	-234 Apr 18 j 21:27	24° <del>2</del> 02'40	14°58'58	retrograde	-226 Feb 19 j 18:47	15° <del>0</del> 10'34	
min. Earth dist.	-234 Apr 19 j 04:30	24° <del>2</del> 02'11	28.73493 AU		-226 Mar 17 j 08:37	15° <del>0</del> 11	
direct	-234 Jul 07 j 18:25	22° <del>2</del> 37'28		opposition	-226 May 09 j 11:51	13° <del>0</del> 49'04	10°50'51
				min. Earth dist.	-226 May 08 j 15:10	13° <del>0</del> 50'28	29.40181 AU
conjunction	-234 Oct 22 j 10:49	25° <del>2</del> 19'46	13°48'45	direct	-226 Jul 28 j 12:33	12° <del>0</del> 26'25	
minimum elong	-234 Oct 22 j 11:12	25° <del>2</del> 19'49	13°48'44				
max. Earth dist.	-234 Oct 22 j 06:26	25° <del>2</del> 19'20	30.69423 AU	conjunction	-226 Nov 10 j 17:42	14° <del>0</del> 59'56	9°52'53
retrograde	-233 Feb 03 j 03:43	27° <del>2</del> 58'47		minimum elong	-226 Nov 10 j 18:04	14° <del>0</del> 59'58	9°52'52
opposition	-233 Apr 21 j 19:05	26° <del>2</del> 35'47	14°32'39		-226 Nov 10 j 18:26	15° <del>0</del>	
min. Earth dist.	-233 Apr 21 j 22:13	26° <del>2</del> 35'34	28.77947 AU	max. Earth dist.	-226 Nov 11 j 16:06	15° <del>0</del> 02'05	31.43508 AU
direct	-233 Jul 10 j 17:53	25° <del>2</del> 10'48		retrograde	-225 Feb 22 j 07:49	17° <del>0</del> 31'53	
				min. Earth dist.	-225 May 11 j 06:33	16° <del>0</del> 12'12	29.53264 AU
conjunction	-233 Oct 25 j 04:49	27° <del>2</del> 52'13	13°23'28	opposition	-225 May 12 j 05:05	16° <del>0</del> 10'41	10°15'05
minimum elong	-233 Oct 25 j 05:12	27° <del>2</del> 52'15	13°23'28		-225 Jul 04 j 02:45	15° <del>0</del> 11	
max. Earth dist.	-233 Oct 25 j 03:10	27° <del>2</del> 52'03	30.74779 AU	direct	-225 Jul 31 j 04:23	14° <del>0</del> 48'26	
	-233 Dec 25 j 23:48	0° <del>0</del>			-225 Aug 26 j 20:09	15° <del>0</del>	
retrograde	-232 Feb 05 j 22:38	0° <del>0</del> 30'31					
	-232 Mar 20 j 13:46	30° <del>0</del> 11		conjunction	-225 Nov 13 j 06:46	17° <del>0</del> 20'39	9°19'13
opposition	-232 Apr 23 j 16:09	29° <del>2</del> 07'39	14°04'49	minimum elong	-225 Nov 13 j 07:07	17° <del>0</del> 20'41	9°19'13
min. Earth dist.	-232 Apr 23 j 16:28	29° <del>2</del> 07'38	28.83472 AU	max. Earth dist.	-225 Nov 14 j 07:33	17° <del>0</del> 23'02	31.57384 AU
direct	-232 Jul 12 j 15:08	27° <del>2</del> 42'55		retrograde	-224 Feb 24 j 21:38	19° <del>0</del> 51'32	
	-232 Oct 17 j 03:12	0° <del>0</del>		opposition	-224 May 13 j 21:20	18° <del>0</del> 30'38	9°38'41
conjunction	-232 Oct 26 j 22:20	0° <del>0</del> 23'22	12°56'48	min. Earth dist.	-224 May 12 j 19:13	18° <del>0</del> 32'22	29.67194 AU
minimum elong	-232 Oct 26 j 22:44	0° <del>0</del> 23'24	12°56'47	direct	-224 Aug 01 j 23:09	17° <del>0</del> 08'47	
max. Earth dist.	-232 Oct 27 j 00:51	0° <del>0</del> 23'37	30.81236 AU				
retrograde	-231 Feb 07 j 15:06	3° <del>0</del> 00'54		conjunction	-224 Nov 14 j 19:11	19° <del>0</del> 39'41	8°45'00
opposition	-231 Apr 26 j 12:53	1° <del>0</del> 38'11	13°35'31	minimum elong	-224 Nov 14 j 19:32	19° <del>0</del> 39'43	8°44'59
min. Earth dist.	-231 Apr 26 j 09:41	1° <del>0</del> 38'24	28.90094 AU	max. Earth dist.	-224 Nov 15 j 22:36	19° <del>0</del> 42'18	31.72050 AU
direct	-231 Jul 15 j 13:46	0° <del>0</del> 13'43		retrograde	-223 Feb 26 j 11:08	22° <del>0</del> 09'28	
				min. Earth dist.	-223 May 15 j 09:05	20° <del>0</del> 50'43	29.81918 AU
conjunction	-231 Oct 29 j 14:59	2° <del>0</del> 53'07	12°28'50	opposition	-223 May 16 j 13:15	20° <del>0</del> 48'51	9°01'43
minimum elong	-231 Oct 29 j 15:23	2° <del>0</del> 53'09	12°28'50	direct	-223 Aug 04 j 14:55	19° <del>0</del> 27'25	
max. Earth dist.	-231 Oct 29 j 20:10	2° <del>0</del> 53'38	30.88820 AU				
retrograde	-230 Feb 10 j 07:46	5° <del>0</del> 29'50		conjunction	-223 Nov 17 j 06:50	21° <del>0</del> 56'57	8°10'18
opposition	-230 Apr 29 j 09:07	4° <del>0</del> 07'17	13°04'52	minimum elong	-223 Nov 17 j 07:10	21° <del>0</del> 56'59	8°10'18
min. Earth dist.	-230 Apr 29 j 02:08	4° <del>0</del> 07'46	28.97877 AU	max. Earth dist.	-223 Nov 18 j 13:01	21° <del>0</del> 59'48	31.87467 AU
direct	-230 Jul 18 j 09:35	2° <del>0</del> 43'07		retrograde	-222 Feb 28 j 22:08	24° <del>0</del> 25'35	
				min. Earth dist.	-222 May 17 j 21:18	23° <del>0</del> 07'18	29.97365 AU
conjunction	-230 Nov 01 j 07:18	5° <del>0</del> 21'26	11°59'39	opposition	-222 May 19 j 04:20	23° <del>0</del> 05'16	8°24'20
				direct	-222 Aug 07 j 08:04	21° <del>0</del> 44'12	



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 12

Attention, astronomical year style is used: The year -222 in astronomical counting style is the year 223 BCE in historical counting style.

conjunction	-222 Nov 19 j 17:47	24° <del>ℳ</del> 12'21	7°35'13	conjunction	-214 Dec 06 j 06:16	11° <del>♊</del> 07'14	2°50'07
minimum elong	-222 Nov 19 j 18:05	24° <del>ℳ</del> 12'23	7°35'12	minimum elong	-214 Dec 06 j 06:23	11° <del>♊</del> 07'14	2°50'06
max. Earth dist.	-222 Nov 21 j 01:43	24° <del>ℳ</del> 15'21	32.03572 AU	max. Earth dist.	-214 Dec 08 j 09:52	11° <del>♊</del> 11'46	33.57753 AU
retrograde	-221 Mar 03 j 09:46	26° <del>ℳ</del> 39'48		retrograde	-213 Mar 19 j 19:21	13° <del>♊</del> 25'18	
min. Earth dist.	-221 May 20 j 09:06	25° <del>ℳ</del> 21'57	30.13528 AU	min. Earth dist.	-213 Jun 06 j 04:15	12° <del>♊</del> 11'07	31.68855 AU
opposition	-221 May 21 j 18:35	25° <del>ℳ</del> 19'46	7°46'35	opposition	-213 Jun 08 j 08:55	12° <del>♊</del> 07'50	2°42'04
direct	-221 Aug 09 j 22:54	23° <del>ℳ</del> 59'05		direct	-213 Aug 27 j 18:08	10° <del>♊</del> 50'27	
conjunction	-221 Nov 22 j 04:04	26° <del>ℳ</del> 25'50	6°59'50	conjunction	-213 Dec 08 j 10:42	13° <del>♊</del> 06'22	2°14'58
minimum elong	-221 Nov 22 j 04:21	26° <del>ℳ</del> 25'52	6°59'50	minimum elong	-213 Dec 08 j 10:48	13° <del>♊</del> 06'23	2°14'58
max. Earth dist.	-221 Nov 23 j 15:14	26° <del>ℳ</del> 29'06	32.20364 AU	max. Earth dist.	-213 Dec 10 j 15:21	13° <del>♊</del> 10'57	33.79874 AU
retrograde	-220 Mar 04 j 18:40	28° <del>ℳ</del> 52'04		retrograde	-212 Mar 21 j 01:11	15° <del>♊</del> 23'20	
min. Earth dist.	-220 May 21 j 20:33	27° <del>ℳ</del> 34'37	30.30375 AU	min. Earth dist.	-212 Jun 07 j 09:42	14° <del>♊</del> 09'37	31.91115 AU
opposition	-220 May 23 j 08:04	27° <del>ℳ</del> 32'18	7°08'35	opposition	-212 Jun 09 j 16:27	14° <del>♊</del> 06'13	2°04'47
direct	-220 Aug 11 j 15:22	26° <del>ℳ</del> 12'00		direct	-212 Aug 29 j 01:55	12° <del>♊</del> 49'17	
conjunction	-220 Nov 23 j 13:18	28° <del>ℳ</del> 37'20	6°24'14	conjunction	-212 Dec 09 j 14:37	15° <del>♊</del> 03'57	1°40'07
minimum elong	-220 Nov 23 j 13:34	28° <del>ℳ</del> 37'21	6°24'13	minimum elong	-212 Dec 09 j 14:41	15° <del>♊</del> 03'57	1°40'06
max. Earth dist.	-220 Nov 25 j 01:57	28° <del>ℳ</del> 40'43	32.37833 AU	max. Earth dist.	-212 Dec 11 j 21:54	15° <del>♊</del> 08'44	34.02408 AU
	-219 Jan 02 j 06:47	0° <del>♊</del>		retrograde	-211 Mar 23 j 03:53	17° <del>♊</del> 19'48	
retrograde	-219 Mar 07 j 04:13	1° <del>♊</del> 02'22		min. Earth dist.	-211 Jun 09 j 15:40	16° <del>♊</del> 06'29	32.13759 AU
	-219 May 14 j 18:09	30° <del>♋</del>		opposition	-211 Jun 11 j 23:21	16° <del>♊</del> 03'03	1°27'53
min. Earth dist.	-219 May 24 j 05:54	29° <del>ℳ</del> 45'23	30.47956 AU	direct	-211 Aug 31 j 11:31	14° <del>♊</del> 46'32	
opposition	-219 May 25 j 20:46	29° <del>ℳ</del> 42'52	6°30'25				
direct	-219 Aug 14 j 04:26	28° <del>ℳ</del> 22'55		conjunction	-211 Dec 11 j 17:53	16° <del>♊</del> 59'56	1°05'37
	-219 Nov 04 j 04:41	0° <del>♊</del>		minimum elong	-211 Dec 11 j 17:55	16° <del>♊</del> 59'57	1°05'38
conjunction	-219 Nov 25 j 21:59	0° <del>♊</del> 46'51	5°48'30	max. Earth dist.	-211 Dec 14 j 01:35	17° <del>♊</del> 04'43	34.25278 AU
minimum elong	-219 Nov 25 j 22:14	0° <del>♊</del> 46'52	5°48'30	retrograde	-210 Mar 25 j 07:57	19° <del>♊</del> 14'42	
max. Earth dist.	-219 Nov 27 j 14:15	0° <del>♊</del> 50'32	32.56027 AU	min. Earth dist.	-210 Jun 11 j 19:18	18° <del>♊</del> 01'52	32.36741 AU
retrograde	-218 Mar 09 j 10:01	3° <del>♊</del> 10'41		opposition	-210 Jun 14 j 05:28	17° <del>♊</del> 58'17	0°51'25
min. Earth dist.	-218 May 26 j 16:14	1° <del>♊</del> 54'05	30.66295 AU	direct	-210 Sep 02 j 17:47	16° <del>♊</del> 42'10	
opposition	-218 May 28 j 08:48	1° <del>♊</del> 51'28	5°52'09	conjunction	-210 Dec 13 j 20:37	18° <del>♊</del> 54'20	0°31'32
direct	-218 Aug 16 j 17:49	0° <del>♊</del> 31'55		minimum elong	-210 Dec 13 j 20:38	18° <del>♊</del> 54'20	0°31'31
conjunction	-218 Nov 28 j 05:44	2° <del>♊</del> 54'26	5°12'41	max. Earth dist.	-210 Dec 16 j 06:35	18° <del>♊</del> 59'16	34.48426 AU
minimum elong	-218 Nov 28 j 05:57	2° <del>♊</del> 54'27	5°12'40	retrograde	-209 Mar 27 j 07:42	21° <del>♊</del> 07'59	
max. Earth dist.	-218 Nov 29 j 23:32	2° <del>♊</del> 58'14	32.74973 AU	min. Earth dist.	-209 Jun 14 j 00:33	19° <del>♊</del> 55'28	32.59994 AU
retrograde	-217 Mar 11 j 17:52	5° <del>♊</del> 17'05		opposition	-209 Jun 16 j 11:00	19° <del>♊</del> 51'54	0°15'25
min. Earth dist.	-217 May 28 j 23:39	4° <del>♊</del> 01'01	30.85410 AU	direct	-209 Sep 05 j 00:37	18° <del>♊</del> 36'10	
opposition	-217 May 30 j 19:52	3° <del>♊</del> 58'11	5°13'52	desc. node	-209 Nov 22 j 06:42	20° <del>♊</del> 00'08	
direct	-217 Aug 19 j 04:51	2° <del>♊</del> 39'02		conjunction	-209 Dec 15 j 22:40	20° <del>♊</del> 47'04	0°-2'-12
conjunction	-217 Nov 30 j 12:57	5° <del>♊</del> 00'11	4°36'53	minimum elong	-209 Dec 15 j 22:41	20° <del>♊</del> 47'04	0°02'13
minimum elong	-217 Nov 30 j 13:08	5° <del>♊</del> 00'12	4°36'53	behind sun begin	-209 Dec 15 j 16:20	20° <del>♊</del> 46'34	
max. Earth dist.	-217 Dec 02 j 09:55	5° <del>♊</del> 04'14	32.94657 AU	behind sun end	-209 Dec 16 j 05:02	20° <del>♊</del> 47'35	
retrograde	-216 Mar 12 j 23:57	7° <del>♊</del> 21'40		max. Earth dist.	-209 Dec 18 j 09:08	20° <del>♊</del> 52'01	34.71820 AU
min. Earth dist.	-216 May 30 j 08:32	6° <del>♊</del> 06'00	31.05279 AU	retrograde	-208 Mar 28 j 09:06	22° <del>♊</del> 59'37	
opposition	-216 Jun 01 j 06:12	6° <del>♊</del> 03'06	4°35'39	min. Earth dist.	-208 Jun 15 j 02:51	21° <del>♊</del> 47'31	32.83503 AU
direct	-216 Aug 20 j 14:29	4° <del>♊</del> 44'22		opposition	-208 Jun 17 j 15:33	21° <del>♊</del> 43'50	0°-20'-4
conjunction	-216 Dec 01 j 19:26	7° <del>♊</del> 04'11	4°01'08	direct	-208 Sep 06 j 05:29	20° <del>♊</del> 28'28	
minimum elong	-216 Dec 01 j 19:35	7° <del>♊</del> 04'12	4°01'07	conjunction	-208 Dec 17 j 00:03	22° <del>♊</del> 38'08	0°-35'-22
max. Earth dist.	-216 Dec 03 j 18:20	7° <del>♊</del> 08'23	33.15065 AU	minimum elong	-208 Dec 17 j 00:02	22° <del>♊</del> 38'08	0°35'24
retrograde	-215 Mar 15 j 07:01	9° <del>♊</del> 24'31		max. Earth dist.	-208 Dec 19 j 12:15	22° <del>♊</del> 43'11	34.95455 AU
min. Earth dist.	-215 Jun 01 j 14:53	8° <del>♊</del> 09'24	31.25854 AU	retrograde	-207 Mar 30 j 10:33	24° <del>♊</del> 49'36	
opposition	-215 Jun 03 j 15:49	8° <del>♊</del> 06'18	3°57'33	min. Earth dist.	-207 Jun 17 j 06:18	23° <del>♊</del> 37'48	33.07307 AU
direct	-215 Aug 23 j 01:06	6° <del>♊</del> 48'01		opposition	-207 Jun 19 j 19:43	23° <del>♊</del> 34'05	0°-55'-2
conjunction	-215 Dec 04 j 01:03	9° <del>♊</del> 06'31	3°25'31	direct	-207 Sep 08 j 08:19	22° <del>♊</del> 19'04	
minimum elong	-215 Dec 04 j 01:12	9° <del>♊</del> 06'31	3°25'32	conjunction	-207 Dec 19 j 00:45	24° <del>♊</del> 27'30	-1°-8'-5
max. Earth dist.	-215 Dec 06 j 02:17	9° <del>♊</del> 10'52	33.36115 AU	minimum elong	-207 Dec 19 j 00:43	24° <del>♊</del> 27'30	1°08'06
retrograde	-214 Mar 17 j 14:43	11° <del>♊</del> 25'43		max. Earth dist.	-207 Dec 21 j 14:35	24° <del>♊</del> 32'39	35.19386 AU
min. Earth dist.	-214 Jun 03 j 22:12	10° <del>♊</del> 11'03	31.47079 AU	retrograde	-206 Apr 01 j 11:12	26° <del>♊</del> 37'53	
opposition	-214 Jun 06 j 00:52	10° <del>♊</del> 07'52	3°19'41	min. Earth dist.	-206 Jun 19 j 07:45	25° <del>♊</del> 26'28	33.31428 AU
direct	-214 Aug 25 j 08:46	8° <del>♊</del> 50'02		opposition	-206 Jun 21 j 23:01	25° <del>♊</del> 22'40	-1°-29'-26
				direct	-206 Sep 10 j 13:16	24° <del>♊</del> 07'59	



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 13

Attention, astronomical year style is used: The year -206 in astronomical counting style is the year 207 BCE in historical counting style.

conjunction	-206 Dec 21 j 00:49	26° $\mathring{A}$ 15'14	-1°-40'-17	direct	-198 Sep 24 j 18:08	7° $\mathring{B}$ 48'33	
minimum elong	-206 Dec 21 j 00:45	26° $\mathring{A}$ 15'14	1°40'19				
max. Earth dist.	-206 Dec 23 j 15:34	26° $\mathring{A}$ 20'25	35.43631 AU	conjunction	-197 Jan 03 j 07:11	9° $\mathring{B}$ 47'28	-5°-36'-59
retrograde	-205 Apr 03 j 13:34	28° $\mathring{A}$ 24'33		minimum elong	-197 Jan 03 j 07:01	9° $\mathring{B}$ 47'27	5°37'00
min. Earth dist.	-205 Jun 21 j 08:40	27° $\mathring{A}$ 13'30	33.55917 AU	max. Earth dist.	-197 Jan 06 j 07:01	9° $\mathring{B}$ 53'02	37.46707 AU
opposition	-205 Jun 24 j 01:35	27° $\mathring{A}$ 09'37	-2°-3'-14	retrograde	-197 Apr 16 j 19:14	11° $\mathring{B}$ 49'17	
direct	-205 Sep 12 j 14:44	25° $\mathring{A}$ 55'18		min. Earth dist.	-197 Jul 05 j 02:06	10° $\mathring{B}$ 41'04	35.60546 AU
				opposition	-197 Jul 08 j 02:04	10° $\mathring{B}$ 36'57	-6°-10'-19
conjunction	-205 Dec 23 j 00:27	28° $\mathring{A}$ 01'24	-2°-11'-56	direct	-197 Sep 26 j 17:57	9° $\mathring{B}$ 25'35	
minimum elong	-205 Dec 23 j 00:23	28° $\mathring{A}$ 01'24	2°11'57				
max. Earth dist.	-205 Dec 25 j 17:30	28° $\mathring{A}$ 06'43	35.68231 AU	conjunction	-196 Jan 05 j 02:57	11° $\mathring{B}$ 23'33	-6°-3'-49
	-204 Mar 09 j 09:01	0° $\mathring{B}$		minimum elong	-196 Jan 05 j 02:47	11° $\mathring{B}$ 23'32	6°03'49
retrograde	-204 Apr 04 j 12:07	0° $\mathring{B}$ 09'41		max. Earth dist.	-196 Jan 08 j 02:04	11° $\mathring{B}$ 29'03	37.72316 AU
	-204 May 01 j 01:46	30° $\mathring{R}$ $\mathring{A}$		retrograde	-196 Apr 17 j 14:41	13° $\mathring{B}$ 24'30	
min. Earth dist.	-204 Jun 22 j 09:50	28° $\mathring{A}$ 58'58	33.80755 AU	min. Earth dist.	-196 Jul 05 j 22:27	12° $\mathring{B}$ 16'38	35.86283 AU
opposition	-204 Jun 25 j 03:37	28° $\mathring{A}$ 55'04	-2°-36'-26	opposition	-196 Jul 08 j 23:45	12° $\mathring{B}$ 12'27	-6°-38'-9
direct	-204 Sep 13 j 18:10	27° $\mathring{A}$ 41'06		direct	-196 Sep 27 j 16:47	11° $\mathring{B}$ 01'24	
conjunction	-204 Dec 23 j 23:15	29° $\mathring{A}$ 46'06	-2°-43'-2	conjunction	-195 Jan 05 j 22:09	12° $\mathring{B}$ 58'26	-6°-30'-1
minimum elong	-204 Dec 23 j 23:09	29° $\mathring{A}$ 46'05	2°43'04	minimum elong	-195 Jan 05 j 21:58	12° $\mathring{B}$ 58'26	6°30'02
max. Earth dist.	-204 Dec 26 j 16:44	29° $\mathring{A}$ 51'25	35.93163 AU	max. Earth dist.	-195 Jan 08 j 22:44	13° $\mathring{B}$ 04'00	37.97828 AU
	-204 Dec 31 j 02:48	0° $\mathring{B}$		retrograde	-195 Apr 19 j 08:12	14° $\mathring{B}$ 58'33	
retrograde	-203 Apr 06 j 11:03	1° $\mathring{B}$ 53'23		min. Earth dist.	-195 Jul 07 j 20:19	13° $\mathring{B}$ 50'53	36.11945 AU
min. Earth dist.	-203 Jun 24 j 08:53	0° $\mathring{B}$ 43'06	34.05938 AU	opposition	-195 Jul 10 j 21:02	13° $\mathring{B}$ 46'45	-7°-5'-19
opposition	-203 Jun 27 j 05:04	0° $\mathring{B}$ 39'04	-3°-8'-59	direct	-195 Sep 29 j 15:46	12° $\mathring{B}$ 36'00	
	-203 Jul 26 j 03:58	30° $\mathring{R}$ $\mathring{A}$					
direct	-203 Sep 15 j 20:09	29° $\mathring{A}$ 25'30		conjunction	-194 Jan 07 j 16:59	14° $\mathring{B}$ 32'07	-6°-55'-35
	-203 Nov 04 j 07:04	0° $\mathring{B}$		minimum elong	-194 Jan 07 j 16:48	14° $\mathring{B}$ 32'06	6°55'36
				max. Earth dist.	-194 Jan 10 j 17:32	14° $\mathring{B}$ 37'38	38.23291 AU
conjunction	-203 Dec 25 j 21:45	1° $\mathring{B}$ 29'24	-3°-13'-33	retrograde	-194 Apr 21 j 02:05	16° $\mathring{B}$ 31'22	
minimum elong	-203 Dec 25 j 21:39	1° $\mathring{B}$ 29'24	3°13'33	min. Earth dist.	-194 Jul 09 j 15:22	15° $\mathring{B}$ 24'02	36.37583 AU
max. Earth dist.	-203 Dec 28 j 17:37	1° $\mathring{B}$ 34'52	36.18397 AU	opposition	-194 Jul 12 j 17:31	15° $\mathring{B}$ 19'50	-7°-31'-48
retrograde	-202 Apr 08 j 07:32	3° $\mathring{B}$ 35'43		direct	-194 Oct 01 j 13:11	14° $\mathring{B}$ 09'23	
min. Earth dist.	-202 Jun 26 j 09:32	2° $\mathring{B}$ 25'47	34.31409 AU				
opposition	-202 Jun 29 j 05:58	2° $\mathring{B}$ 21'45	-3°-40'-53	conjunction	-193 Jan 09 j 11:16	16° $\mathring{B}$ 04'35	-7°-20'-31
direct	-202 Sep 17 j 22:55	1° $\mathring{B}$ 08'33		minimum elong	-193 Jan 09 j 11:04	16° $\mathring{B}$ 04'35	7°20'33
				max. Earth dist.	-193 Jan 12 j 12:29	16° $\mathring{B}$ 10'08	38.48736 AU
conjunction	-202 Dec 27 j 19:41	3° $\mathring{B}$ 11'24	-3°-43'-27	retrograde	-193 Apr 22 j 21:21	18° $\mathring{B}$ 03'03	
minimum elong	-202 Dec 27 j 19:33	3° $\mathring{B}$ 11'24	3°43'29	min. Earth dist.	-193 Jul 11 j 11:31	16° $\mathring{B}$ 55'56	36.63246 AU
max. Earth dist.	-202 Dec 30 j 15:54	3° $\mathring{B}$ 16'52	36.43879 AU	opposition	-193 Jul 14 j 13:42	16° $\mathring{B}$ 51'46	-7°-57'-35
retrograde	-201 Apr 10 j 05:21	5° $\mathring{B}$ 16'47		direct	-193 Oct 03 j 08:18	15° $\mathring{B}$ 41'37	
min. Earth dist.	-201 Jun 28 j 07:43	4° $\mathring{B}$ 07'17	34.57096 AU				
opposition	-201 Jul 01 j 06:10	4° $\mathring{B}$ 03'09	-4°-12'-7	conjunction	-192 Jan 11 j 05:13	17° $\mathring{B}$ 35'57	-7°-44'-49
direct	-201 Sep 19 j 23:31	2° $\mathring{B}$ 50'21		minimum elong	-192 Jan 11 j 05:01	17° $\mathring{B}$ 35'56	7°44'50
				max. Earth dist.	-192 Jan 14 j 07:31	17° $\mathring{B}$ 41'32	38.74218 AU
conjunction	-201 Dec 29 j 17:08	4° $\mathring{B}$ 52'10	-4°-12'-46	retrograde	-192 Apr 23 j 16:14	19° $\mathring{B}$ 33'36	
minimum elong	-201 Dec 29 j 17:00	4° $\mathring{B}$ 52'10	4°12'47	min. Earth dist.	-192 Jul 12 j 06:24	18° $\mathring{B}$ 26'47	36.88941 AU
max. Earth dist.	-200 Jan 01 j 14:39	4° $\mathring{B}$ 57'42	36.69514 AU	opposition	-192 Jul 15 j 09:13	18° $\mathring{B}$ 22'35	-8°-22'-40
retrograde	-200 Apr 11 j 03:12	6° $\mathring{B}$ 56'39		direct	-192 Oct 04 j 02:52	17° $\mathring{B}$ 12'44	
min. Earth dist.	-200 Jun 29 j 07:24	5° $\mathring{B}$ 47'28	34.82931 AU				
opposition	-200 Jul 02 j 05:56	5° $\mathring{B}$ 43'21	-4°-42'-41	conjunction	-191 Jan 11 j 22:39	19° $\mathring{B}$ 06'15	-8°-8'-27
direct	-200 Sep 20 j 22:25	4° $\mathring{B}$ 30'56		minimum elong	-191 Jan 11 j 22:27	19° $\mathring{B}$ 06'14	8°08'28
				max. Earth dist.	-191 Jan 15 j 00:48	19° $\mathring{B}$ 11'46	38.99741 AU
conjunction	-200 Dec 30 j 14:17	6° $\mathring{B}$ 31'46	-4°-41'-27	retrograde	-191 Apr 25 j 11:37	21° $\mathring{B}$ 03'07	
minimum elong	-200 Dec 30 j 14:08	6° $\mathring{B}$ 31'45	4°41'29	min. Earth dist.	-191 Jul 14 j 00:29	19° $\mathring{B}$ 56'37	37.14698 AU
max. Earth dist.	-199 Jan 02 j 12:46	6° $\mathring{B}$ 37'19	36.95255 AU	opposition	-191 Jul 17 j 04:28	19° $\mathring{B}$ 52'24	-8°-47'-3
retrograde	-199 Apr 13 j 01:05	8° $\mathring{B}$ 35'21		direct	-191 Oct 05 j 20:15	18° $\mathring{B}$ 42'51	
min. Earth dist.	-199 Jul 01 j 05:38	7° $\mathring{B}$ 26'31	35.08826 AU				
opposition	-199 Jul 04 j 05:10	7° $\mathring{B}$ 22'23	-5°-12'-34	conjunction	-190 Jan 13 j 15:47	20° $\mathring{B}$ 35'33	-8°-31'-27
direct	-199 Sep 22 j 21:24	6° $\mathring{B}$ 10'20		minimum elong	-190 Jan 13 j 15:35	20° $\mathring{B}$ 35'32	8°31'29
				max. Earth dist.	-190 Jan 16 j 19:34	20° $\mathring{B}$ 41'09	39.25302 AU
conjunction	-198 Jan 01 j 10:48	8° $\mathring{B}$ 10'11	-5°-9'-32	retrograde	-190 Apr 27 j 03:21	22° $\mathring{B}$ 31'41	
minimum elong	-198 Jan 01 j 10:38	8° $\mathring{B}$ 10'11	5°09'33	min. Earth dist.	-190 Jul 15 j 19:40	21° $\mathring{B}$ 25'26	37.40464 AU
max. Earth dist.	-198 Jan 04 j 09:20	8° $\mathring{B}$ 15'43	37.21003 AU	opposition	-190 Jul 18 j 23:14	21° $\mathring{B}$ 21'14	-9°-10'-45
retrograde	-198 Apr 15 j 00:14	10° $\mathring{B}$ 12'54		direct	-190 Oct 07 j 16:50	20° $\mathring{B}$ 12'00	
min. Earth dist.	-198 Jul 03 j 03:40	9° $\mathring{B}$ 04'24	35.34725 AU				
opposition	-198 Jul 06 j 03:59	9° $\mathring{B}$ 00'15	-5°-41'-47	conjunction	-189 Jan 15 j 08:35	22° $\mathring{B}$ 03'55	-8°-53'-49



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 14

Attention, astronomical year style is used: The year -189 in astronomical counting style is the year 190 BCE in historical counting style.

minimum elong	-189 Jan 15 j 08:22	22° $\overline{3}$ 03'54	8°53'50	minimum elong	-181 Jan 26 j 11:15	3° $\approx$ 19'20	11°31'06
max. Earth dist.	-189 Jan 18 j 11:44	22° $\overline{3}$ 09'27	39.50856 AU	max. Earth dist.	-181 Jan 29 j 14:34	3° $\approx$ 24'37	41.48485 AU
retrograde	-189 Apr 28 j 19:41	23° $\overline{3}$ 59'19		retrograde	-181 May 09 j 20:45	5° $\approx$ 09'20	
min. Earth dist.	-189 Jul 17 j 12:31	22° $\overline{3}$ 53'25	37.66203 AU	min. Earth dist.	-181 Jul 29 j 03:31	4° $\approx$ 05'05	39.64653 AU
opposition	-189 Jul 20 j 17:22	22° $\overline{3}$ 49'10	-9°-33'-45	opposition	-181 Aug 01 j 06:21	4° $\approx$ 01'04	-12°-14'-55
direct	-189 Oct 09 j 12:01	21° $\overline{3}$ 40'15		direct	-181 Oct 21 j 03:40	2° $\approx$ 54'12	
conjunction	-188 Jan 17 j 01:01	23° $\overline{3}$ 31'25	-9°-15'-33	conjunction	-180 Jan 28 j 01:23	4° $\approx$ 39'41	-11°-48'-9
minimum elong	-188 Jan 17 j 00:49	23° $\overline{3}$ 31'24	9°15'35	minimum elong	-180 Jan 28 j 01:11	4° $\approx$ 39'40	11°48'11
max. Earth dist.	-188 Jan 20 j 05:13	23° $\overline{3}$ 36'59	39.76341 AU	max. Earth dist.	-180 Jan 31 j 05:05	4° $\approx$ 44'58	41.72130 AU
retrograde	-188 Apr 29 j 11:06	25° $\overline{3}$ 26'07		retrograde	-180 May 10 j 10:27	6° $\approx$ 29'02	
min. Earth dist.	-188 Jul 18 j 07:24	24° $\overline{3}$ 20'25	37.91854 AU	min. Earth dist.	-180 Jul 29 j 18:08	5° $\approx$ 25'00	39.88435 AU
opposition	-188 Jul 21 j 11:24	24° $\overline{3}$ 16'14	-9°-56'-6	opposition	-180 Aug 01 j 21:12	5° $\approx$ 20'59	-12°-32'-18
direct	-188 Oct 10 j 06:49	23° $\overline{3}$ 07'38		direct	-180 Oct 21 j 18:53	4° $\approx$ 14'21	
conjunction	-187 Jan 17 j 17:05	24° $\overline{3}$ 58'03	-9°-36'-41	conjunction	-179 Jan 28 j 14:45	5° $\approx$ 59'11	-12°-4'-38
minimum elong	-187 Jan 17 j 16:52	24° $\overline{3}$ 58'02	9°36'41	minimum elong	-179 Jan 28 j 14:33	5° $\approx$ 59'11	12°04'39
max. Earth dist.	-187 Jan 20 j 21:19	25° $\overline{3}$ 03'36	40.01710 AU	max. Earth dist.	-179 Jan 31 j 17:41	6° $\approx$ 04'23	41.95642 AU
retrograde	-187 May 01 j 02:31	26° $\overline{3}$ 52'04		retrograde	-179 May 12 j 02:52	7° $\approx$ 47'57	
min. Earth dist.	-187 Jul 20 j 00:14	25° $\overline{3}$ 46'41	38.17341 AU	min. Earth dist.	-179 Jul 31 j 08:16	6° $\approx$ 44'08	40.12106 AU
opposition	-187 Jul 23 j 04:57	25° $\overline{3}$ 42'28	-10°-17'-48	opposition	-179 Aug 03 j 11:51	6° $\approx$ 40'07	-12°-49'-4
direct	-187 Oct 12 j 01:15	24° $\overline{3}$ 34'10		direct	-179 Oct 23 j 06:35	5° $\approx$ 33'43	
conjunction	-186 Jan 19 j 08:55	26° $\overline{3}$ 23'50	-9°-57'-12	conjunction	-178 Jan 30 j 04:06	7° $\approx$ 17'58	-12°-20'-33
minimum elong	-186 Jan 19 j 08:42	26° $\overline{3}$ 23'49	9°57'13	minimum elong	-178 Jan 30 j 03:54	7° $\approx$ 17'57	12°20'34
max. Earth dist.	-186 Jan 22 j 12:43	26° $\overline{3}$ 29'19	40.26873 AU	max. Earth dist.	-178 Feb 02 j 08:09	7° $\approx$ 23'12	42.19041 AU
retrograde	-186 May 02 j 20:58	28° $\overline{3}$ 17'11		retrograde	-178 May 13 j 15:48	9° $\approx$ 06'09	
min. Earth dist.	-186 Jul 21 j 17:50	27° $\overline{3}$ 12'01	38.42612 AU	min. Earth dist.	-178 Aug 01 j 23:23	8° $\approx$ 02'30	40.35642 AU
opposition	-186 Jul 24 j 22:09	27° $\overline{3}$ 07'51	-10°-38'-51	opposition	-178 Aug 05 j 01:59	7° $\approx$ 58'33	-13°-5'-15
direct	-186 Oct 13 j 16:16	25° $\overline{3}$ 59'50		direct	-178 Oct 24 j 20:59	6° $\approx$ 52'24	
conjunction	-185 Jan 21 j 00:37	27° $\overline{3}$ 48'47	-10°-17'-7	conjunction	-177 Jan 31 j 17:07	8° $\approx$ 36'04	-12°-35'-55
minimum elong	-185 Jan 21 j 00:24	27° $\overline{3}$ 48'46	10°17'08	minimum elong	-177 Jan 31 j 16:56	8° $\approx$ 36'03	12°35'56
max. Earth dist.	-185 Jan 24 j 04:57	27° $\overline{3}$ 54'16	40.51783 AU	max. Earth dist.	-177 Feb 03 j 20:14	8° $\approx$ 41'13	42.42307 AU
retrograde	-185 May 04 j 12:49	29° $\overline{3}$ 41'27		retrograde	-177 May 15 j 03:35	10° $\approx$ 23'42	
min. Earth dist.	-185 Jul 23 j 11:23	28° $\overline{3}$ 36'28	38.67581 AU	min. Earth dist.	-177 Aug 03 j 12:19	9° $\approx$ 20'20	40.59026 AU
opposition	-185 Jul 26 j 14:57	28° $\overline{3}$ 32'22	-10°-59'-17	opposition	-177 Aug 06 j 15:51	9° $\approx$ 16'20	-13°-20'-50
direct	-185 Oct 15 j 08:52	27° $\overline{3}$ 24'36		direct	-177 Oct 26 j 11:38	8° $\approx$ 10'26	
conjunction	-184 Jan 22 j 15:47	29° $\overline{3}$ 12'50	-10°-36'-28	conjunction	-176 Feb 02 j 05:45	9° $\approx$ 53'33	-12°-50'-43
minimum elong	-184 Jan 22 j 15:34	29° $\overline{3}$ 12'50	10°36'30	minimum elong	-176 Feb 02 j 05:33	9° $\approx$ 53'32	12°50'45
max. Earth dist.	-184 Jan 25 j 18:51	29° $\overline{3}$ 18'12	40.76379 AU	max. Earth dist.	-176 Feb 05 j 09:21	9° $\approx$ 58'43	42.65389 AU
retrograde	-184 Feb 20 j 01:49	0° $\approx$		retrograde	-176 May 15 j 15:00	11° $\approx$ 40'40	
min. Earth dist.	-184 May 05 j 05:03	1° $\approx$ 04'49		min. Earth dist.	-176 Aug 04 j 03:10	10° $\approx$ 37'28	40.82209 AU
opposition	-184 Jul 24 j 03:18	0° $\approx$ 00'04	38.92241 AU	opposition	-176 Aug 07 j 05:33	10° $\approx$ 33'33	-13°-35'-52
direct	-184 Jul 24 j 04:37	30° $\overline{R}$ $\overline{3}$		direct	-176 Oct 27 j 02:49	9° $\approx$ 27'54	
conjunction	-184 Jul 27 j 07:25	29° $\overline{3}$ 55'57	-11°-19'-6	conjunction	-175 Feb 02 j 18:21	11° $\approx$ 10'29	-13°-5'00
minimum elong	-184 Oct 16 j 00:39	28° $\overline{3}$ 48'26		minimum elong	-175 Feb 02 j 18:11	11° $\approx$ 10'28	13°05'01
max. Earth dist.	-183 Jan 01 j 18:36	0° $\approx$		max. Earth dist.	-175 Feb 05 j 21:43	11° $\approx$ 15'36	42.88263 AU
retrograde	-183 Jan 23 j 06:45	0° $\approx$ 35'58	-10°-55'-15	retrograde	-175 May 17 j 03:02	12° $\approx$ 57'05	
minimum elong	-183 Jan 23 j 06:32	0° $\approx$ 35'57	10°55'16	min. Earth dist.	-175 Aug 05 j 16:18	11° $\approx$ 54'07	41.05135 AU
max. Earth dist.	-183 Jan 26 j 10:34	0° $\approx$ 41'20	41.00667 AU	opposition	-175 Aug 08 j 18:49	11° $\approx$ 50'12	-13°-50'-20
retrograde	-183 May 06 j 17:51	2° $\approx$ 27'15		direct	-175 Oct 28 j 17:03	10° $\approx$ 44'49	
min. Earth dist.	-183 Jul 25 j 20:42	1° $\approx$ 22'38	39.16604 AU	conjunction	-174 Feb 04 j 06:39	12° $\approx$ 26'51	-13°-18'-46
opposition	-183 Jul 28 j 23:34	1° $\approx$ 18'36	-11°-38'-19	minimum elong	-174 Feb 04 j 06:28	12° $\approx$ 26'51	13°18'47
direct	-183 Oct 17 j 18:57	0° $\approx$ 11'18		max. Earth dist.	-174 Feb 07 j 09:00	12° $\approx$ 31'53	43.10842 AU
conjunction	-182 Jan 24 j 21:15	1° $\approx$ 58'08	-11°-13'-28	retrograde	-174 May 18 j 17:45	14° $\approx$ 12'58	
minimum elong	-182 Jan 24 j 21:03	1° $\approx$ 58'07	11°13'30	min. Earth dist.	-174 Aug 07 j 06:10	13° $\approx$ 10'10	41.27749 AU
max. Earth dist.	-182 Jan 28 j 00:17	2° $\approx$ 03'25	41.24691 AU	opposition	-174 Aug 10 j 07:58	13° $\approx$ 06'19	-14°-4'-16
retrograde	-182 May 08 j 06:48	3° $\approx$ 48'45		direct	-174 Oct 30 j 04:26	12° $\approx$ 01'10	
min. Earth dist.	-182 Jul 27 j 11:33	2° $\approx$ 44'22	39.40720 AU	conjunction	-173 Feb 05 j 18:59	13° $\approx$ 42'41	-13°-32'-2
opposition	-182 Jul 30 j 15:09	2° $\approx$ 40'17	-11°-56'-55	minimum elong	-173 Feb 05 j 18:49	13° $\approx$ 42'41	13°32'03
direct	-182 Oct 19 j 12:00	1° $\approx$ 33'12		max. Earth dist.	-173 Feb 08 j 21:42	13° $\approx$ 47'42	43.33073 AU
conjunction	-181 Jan 26 j 11:27	3° $\approx$ 19'21	-11°-31'-6		-173 Mar 31 j 15:33	15° $\approx$	



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 15

Attention, astronomical year style is used: The year -173 in astronomical counting style is the year 174 BCE in historical counting style.

retrograde	-173 May 20 j 07:00	15°28'17		max. Earth dist.	-165 Feb 18 j 10:04	23°30'29	44.98769 AU
	-173 Jul 10 j 07:40	15°R		retrograde	-165 May 29 j 20:46	25°07'35	
min. Earth dist.	-173 Aug 08 j 20:03	14°25'38	41.49967 AU	min. Earth dist.	-165 Aug 18 j 19:34	24°06'05	43.15856 AU
opposition	-173 Aug 11 j 20:38	14°21'51	-14°-17'-41	opposition	-165 Aug 21 j 17:02	24°02'33	-15°-47'-14
direct	-173 Oct 31 j 16:07	13°16'55		direct	-165 Nov 10 j 14:02	22°59'02	
conjunction	-172 Feb 07 j 06:56	14°57'56	-13°-44'-49	conjunction	-164 Feb 16 j 21:37	24°36'09	-15°-10'-7
minimum elong	-172 Feb 07 j 06:45	14°57'55	13°44'50	minimum elong	-164 Feb 16 j 21:30	24°36'09	15°10'07
	-172 Feb 08 j 13:55	15°		max. Earth dist.	-164 Feb 19 j 19:40	24°40'40	45.18382 AU
max. Earth dist.	-172 Feb 10 j 07:50	15°02'48	43.54908 AU	retrograde	-164 May 30 j 06:03	26°17'25	
retrograde	-172 May 20 j 21:10	16°43'00		min. Earth dist.	-164 Aug 19 j 07:24	25°16'02	43.35485 AU
min. Earth dist.	-172 Aug 09 j 08:24	15°40'33	41.71782 AU	opposition	-164 Aug 22 j 03:37	25°12'34	-15°-56'-14
opposition	-172 Aug 12 j 09:13	15°36'46	-14°-30'-37	direct	-164 Nov 11 j 01:54	24°09'16	
	-172 Sep 12 j 16:21	15°R					
direct	-172 Nov 01 j 02:37	14°32'02		conjunction	-163 Feb 17 j 07:33	25°45'58	-15°-18'-42
	-172 Dec 19 j 04:48	15°		minimum elong	-163 Feb 17 j 07:26	25°45'57	15°18'43
				max. Earth dist.	-163 Feb 20 j 05:47	25°50'28	45.37725 AU
conjunction	-171 Feb 07 j 18:33	16°12'31	-13°-57'-8	retrograde	-163 May 31 j 15:39	27°26'50	
minimum elong	-171 Feb 07 j 18:24	16°12'30	13°57'10	min. Earth dist.	-163 Aug 20 j 18:12	26°25'36	43.54790 AU
max. Earth dist.	-171 Feb 10 j 19:38	16°17'23	43.76333 AU	opposition	-163 Aug 23 j 13:52	26°22'11	-16°-4'-47
retrograde	-171 May 22 j 06:10	17°57'04		direct	-163 Nov 12 j 13:12	25°19'04	
min. Earth dist.	-171 Aug 10 j 22:34	16°54'42	41.93195 AU				
opposition	-171 Aug 13 j 21:35	16°51'01	-14°-43'-3	conjunction	-162 Feb 18 j 17:23	26°55'23	-15°-26'-51
direct	-171 Nov 02 j 16:46	15°46'27		minimum elong	-162 Feb 18 j 17:18	26°55'22	15°26'52
				max. Earth dist.	-162 Feb 21 j 13:53	26°59'45	45.56718 AU
conjunction	-170 Feb 09 j 06:04	17°26'25	-14°-8'-59	retrograde	-162 Jun 02 j 04:35	28°35'51	
minimum elong	-170 Feb 09 j 05:55	17°26'24	14°08'59	min. Earth dist.	-162 Aug 22 j 04:42	27°34'47	43.73724 AU
max. Earth dist.	-170 Feb 12 j 06:20	17°31'12	43.97393 AU	opposition	-162 Aug 24 j 23:51	27°31'24	-16°-12'-54
retrograde	-170 May 23 j 14:25	19°10'27		direct	-162 Nov 13 j 20:24	26°28'28	
min. Earth dist.	-170 Aug 12 j 10:06	18°08'14	42.14253 AU				
opposition	-170 Aug 15 j 09:21	18°04'33	-14°-54'-59	conjunction	-161 Feb 20 j 03:14	28°04'24	-15°-34'-37
direct	-170 Nov 04 j 07:40	17°00'09		minimum elong	-161 Feb 20 j 03:08	28°04'24	15°34'38
				max. Earth dist.	-161 Feb 22 j 23:45	28°08'46	45.75300 AU
conjunction	-169 Feb 10 j 17:12	18°39'36	-14°-20'-21	retrograde	-161 Jun 03 j 14:16	29°44'30	
minimum elong	-169 Feb 10 j 17:03	18°39'35	14°20'23	min. Earth dist.	-161 Aug 23 j 16:31	28°43'31	43.92201 AU
max. Earth dist.	-169 Feb 13 j 16:44	18°44'19	44.18122 AU	opposition	-161 Aug 26 j 09:46	28°40'14	-16°-20'-38
retrograde	-169 May 25 j 02:12	20°23'08		direct	-161 Nov 15 j 06:18	27°37'29	
min. Earth dist.	-169 Aug 13 j 22:43	19°21'02	42.35025 AU				
opposition	-169 Aug 16 j 21:05	19°17'24	-15°-6'-26	conjunction	-160 Feb 21 j 12:44	29°13'02	-15°-42'00
direct	-169 Nov 05 j 19:42	18°13'10		minimum elong	-160 Feb 21 j 12:40	29°13'02	15°42'01
				max. Earth dist.	-160 Feb 24 j 07:34	29°17'16	45.93421 AU
conjunction	-168 Feb 12 j 04:05	19°52'06	-14°-31'-15		-160 Mar 24 j 16:16	0°	
minimum elong	-168 Feb 12 j 03:56	19°52'05	14°31'16	retrograde	-160 Jun 03 j 22:35	0°52'44	
max. Earth dist.	-168 Feb 15 j 04:05	19°56'49	44.38597 AU		-160 Aug 17 j 07:59	30°R	
retrograde	-168 May 25 j 12:29	21°35'09		min. Earth dist.	-160 Aug 24 j 02:14	29°51'54	44.10196 AU
min. Earth dist.	-168 Aug 14 j 10:31	20°33'10	42.55544 AU	opposition	-160 Aug 26 j 19:28	29°48'38	-16°-27'-57
opposition	-168 Aug 17 j 08:26	20°29'34	-15°-17'-22	direct	-160 Nov 15 j 16:28	28°46'03	
direct	-168 Nov 06 j 07:48	19°25'30			-159 Feb 07 j 19:44	0°	
conjunction	-167 Feb 12 j 14:43	21°03'57	-14°-41'-40	conjunction	-159 Feb 21 j 22:10	0°21'13	-15°-49'00
minimum elong	-167 Feb 12 j 14:35	21°03'56	14°41'42	minimum elong	-159 Feb 21 j 22:05	0°21'13	15°49'01
max. Earth dist.	-167 Feb 15 j 13:28	21°08'34	44.58855 AU	max. Earth dist.	-159 Feb 24 j 16:08	0°25'23	46.11053 AU
retrograde	-167 May 27 j 01:35	22°46'31		retrograde	-159 Jun 05 j 06:28	2°00'32	
min. Earth dist.	-167 Aug 15 j 21:23	21°44'42	42.75867 AU	min. Earth dist.	-159 Aug 25 j 13:41	0°59'45	44.27715 AU
opposition	-167 Aug 18 j 19:35	21°41'07	-15°-27'-49	opposition	-159 Aug 28 j 05:02	0°56'34	-16°-34'-53
direct	-167 Nov 07 j 16:23	20°37'13			-159 Oct 25 j 19:00	30°R	
				direct	-159 Nov 17 j 03:28	29°54'08	
conjunction	-166 Feb 14 j 01:14	22°15'12	-14°-51'-37		-159 Dec 09 j 05:03	0°	
minimum elong	-166 Feb 14 j 01:06	22°15'12	14°51'37				
max. Earth dist.	-166 Feb 17 j 00:42	22°19'51	44.78914 AU	conjunction	-158 Feb 23 j 07:29	1°28'55	-15°-55'-37
retrograde	-166 May 28 j 11:50	23°57'19		minimum elong	-158 Feb 23 j 07:25	1°28'55	15°55'39
min. Earth dist.	-166 Aug 17 j 09:36	22°55'36	42.95975 AU	max. Earth dist.	-158 Feb 26 j 00:55	1°33'02	46.28239 AU
opposition	-166 Aug 20 j 06:32	22°52'05	-15°-37'-46	retrograde	-158 Jun 06 j 14:04	3°07'51	
direct	-166 Nov 09 j 03:14	21°48'23		min. Earth dist.	-158 Aug 26 j 23:21	2°07'11	44.44784 AU
				opposition	-158 Aug 29 j 14:13	2°04'02	-16°-41'-26
conjunction	-165 Feb 15 j 11:34	23°25'55	-15°-1'-5	direct	-158 Nov 18 j 14:45	1°01'43	
minimum elong	-165 Feb 15 j 11:26	23°25'55	15°01'07				



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 16

Attention, astronomical year style is used: The year -157 in astronomical counting style is the year 158 BCE in historical counting style.

conjunction	-157 Feb 24 j 16:27	2° <del>36</del> '08	-16°-1'-52	retrograde	-149 Jun 16 j 20:03	12° <del>55</del> '16	
minimum elong	-157 Feb 24 j 16:22	2° <del>36</del> '07	16°01'53	min. Earth dist.	-149 Sep 06 j 10:13	11° <del>55</del> '27	45.83891 AU
max. Earth dist.	-157 Feb 27 j 08:10	2° <del>40</del> '07	46.45006 AU	opposition	-149 Sep 08 j 17:05	11° <del>52</del> '46	-17°-22'-42
retrograde	-157 Jun 08 j 01:05	4° <del>14</del> '40		direct	-149 Nov 28 j 14:34	10° <del>51</del> '43	
min. Earth dist.	-157 Aug 28 j 09:06	3° <del>14</del> '05	44.61481 AU				
opposition	-157 Aug 30 j 23:11	3° <del>11</del> '00	-16°-47'-35	conjunction	-148 Mar 05 j 19:01	12° <del>23</del> '18	-16°-41'-7
direct	-157 Nov 19 j 22:30	2° <del>08</del> '49		minimum elong	-148 Mar 05 j 19:01	12° <del>23</del> '18	16°41'08
				max. Earth dist.	-148 Mar 08 j 04:20	12° <del>26</del> '47	47.81861 AU
conjunction	-156 Feb 26 j 01:19	3° <del>42</del> '51	-16°-7'-43	retrograde	-148 Jun 17 j 01:05	13° <del>58</del> '55	
minimum elong	-156 Feb 26 j 01:16	3° <del>42</del> '51	16°07'45	min. Earth dist.	-148 Sep 06 j 18:11	12° <del>59</del> '12	45.97371 AU
max. Earth dist.	-156 Feb 28 j 17:32	3° <del>46</del> '52	46.61432 AU	opposition	-148 Sep 09 j 00:38	12° <del>56</del> '32	-17°-25'-30
retrograde	-156 Jun 08 j 10:56	5° <del>21</del> '02		direct	-148 Nov 29 j 00:12	11° <del>55</del> '36	
min. Earth dist.	-156 Aug 28 j 19:14	4° <del>20</del> '30	44.77849 AU				
opposition	-156 Aug 31 j 08:02	4° <del>17</del> '29	-16°-53'-20	conjunction	-147 Mar 07 j 02:39	13° <del>26</del> '53	-16°-43'-47
direct	-156 Nov 20 j 06:03	3° <del>15</del> '27		minimum elong	-147 Mar 07 j 02:40	13° <del>26</del> '53	16°43'48
				max. Earth dist.	-147 Mar 09 j 10:03	13° <del>30</del> '14	47.95034 AU
conjunction	-155 Feb 26 j 09:51	4° <del>49</del> '08	-16°-13'-12	retrograde	-147 Jun 18 j 08:27	15° <del>02</del> '12	
minimum elong	-155 Feb 26 j 09:48	4° <del>49</del> '08	16°13'12	min. Earth dist.	-147 Sep 08 j 03:20	14° <del>02</del> '30	46.10340 AU
max. Earth dist.	-155 Mar 01 j 00:36	4° <del>53</del> '02	46.77570 AU	opposition	-147 Sep 10 j 08:12	13° <del>59</del> '55	-17°-28'00
retrograde	-155 Jun 09 j 20:57	6° <del>26</del> '56		direct	-147 Nov 30 j 08:55	12° <del>59</del> '05	
min. Earth dist.	-155 Aug 30 j 03:27	5° <del>26</del> '34	44.93938 AU				
opposition	-155 Sep 01 j 16:39	5° <del>23</del> '32	-16°-58'-41	conjunction	-146 Mar 08 j 10:23	14° <del>30</del> '03	-16°-46'-8
direct	-155 Nov 21 j 12:30	4° <del>21</del> '38		minimum elong	-146 Mar 08 j 10:23	14° <del>30</del> '03	16°46'09
				max. Earth dist.	-146 Mar 10 j 17:39	14° <del>33</del> '24	48.07714 AU
conjunction	-154 Feb 27 j 18:23	5° <del>54</del> '59	-16°-18'-17	retrograde	-146 Jun 19 j 15:54	16° <del>05</del> '04	
minimum elong	-154 Feb 27 j 18:21	5° <del>54</del> '59	16°18'18	min. Earth dist.	-146 Sep 09 j 11:51	15° <del>05</del> '23	46.22820 AU
max. Earth dist.	-154 Mar 02 j 08:53	5° <del>58</del> '51	46.93429 AU	opposition	-146 Sep 11 j 15:18	15° <del>02</del> '53	-17°-30'-10
retrograde	-154 Jun 11 j 02:33	7° <del>32</del> '27		direct	-146 Dec 01 j 17:05	14° <del>02</del> '07	
min. Earth dist.	-154 Aug 31 j 13:35	6° <del>32</del> '08	45.09756 AU				
opposition	-154 Sep 03 j 01:05	6° <del>29</del> '12	-17°-3'-37	conjunction	-145 Mar 09 j 17:47	15° <del>32</del> '48	-16°-48'-11
direct	-154 Nov 22 j 23:01	5° <del>27</del> '26		minimum elong	-145 Mar 09 j 17:49	15° <del>32</del> '48	16°48'12
				max. Earth dist.	-145 Mar 11 j 23:02	15° <del>36</del> '00	48.19951 AU
conjunction	-153 Mar 01 j 02:50	7° <del>00</del> '28	-16°-22'-59	retrograde	-145 Jun 21 j 01:37	17° <del>07</del> '30	
minimum elong	-153 Mar 01 j 02:48	7° <del>00</del> '28	16°22'59	min. Earth dist.	-145 Sep 10 j 19:05	16° <del>07</del> '53	46.34894 AU
max. Earth dist.	-153 Mar 03 j 17:00	7° <del>04</del> '19	47.09035 AU	opposition	-145 Sep 12 j 22:21	16° <del>05</del> '24	-17°-32'-1
retrograde	-153 Jun 12 j 07:56	8° <del>37</del> '36		direct	-145 Dec 02 j 21:46	15° <del>04</del> '43	
min. Earth dist.	-153 Sep 01 j 21:47	7° <del>37</del> '27	45.25291 AU				
opposition	-153 Sep 04 j 09:18	7° <del>34</del> '30	-17°-8'-10	conjunction	-144 Mar 10 j 00:55	16° <del>35</del> '07	-16°-49'-55
direct	-153 Nov 24 j 10:11	6° <del>32</del> '54		minimum elong	-144 Mar 10 j 00:56	16° <del>35</del> '07	16°49'56
				max. Earth dist.	-144 Mar 12 j 05:54	16° <del>38</del> '17	48.31804 AU
conjunction	-152 Mar 01 j 10:49	8° <del>05</del> '37	-16°-27'-18	retrograde	-144 Jun 21 j 07:32	18° <del>09</del> '31	
minimum elong	-152 Mar 01 j 10:48	8° <del>05</del> '37	16°27'20	min. Earth dist.	-144 Sep 11 j 03:56	17° <del>09</del> '54	46.46613 AU
max. Earth dist.	-152 Mar 03 j 23:35	8° <del>09</del> '22	47.24351 AU	opposition	-144 Sep 13 j 05:22	17° <del>07</del> '30	-17°-33'-32
retrograde	-152 Jun 12 j 18:05	9° <del>42</del> '27		direct	-144 Dec 03 j 05:01	16° <del>06</del> '54	
min. Earth dist.	-152 Sep 02 j 06:52	8° <del>42</del> '24	45.40532 AU				
opposition	-152 Sep 04 j 17:34	8° <del>39</del> '30	-17°-12'-20	conjunction	-143 Mar 11 j 08:07	17° <del>37</del> '02	-16°-51'-19
direct	-152 Nov 24 j 17:38	7° <del>38</del> '03		minimum elong	-143 Mar 11 j 08:09	17° <del>37</del> '03	16°51'20
				max. Earth dist.	-143 Mar 13 j 12:29	17° <del>40</del> '11	48.43349 AU
conjunction	-151 Mar 02 j 19:02	9° <del>10</del> '28	-16°-31'-15	retrograde	-143 Jun 22 j 11:32	19° <del>11</del> '10	
minimum elong	-151 Mar 02 j 19:01	9° <del>10</del> '28	16°31'16	min. Earth dist.	-143 Sep 12 j 10:28	18° <del>11</del> '39	46.58029 AU
max. Earth dist.	-151 Mar 05 j 08:03	9° <del>14</del> '13	47.39354 AU	opposition	-143 Sep 14 j 11:58	18° <del>09</del> '15	-17°-34'-43
retrograde	-151 Jun 14 j 02:41	10° <del>47</del> '01		direct	-143 Dec 04 j 13:54	17° <del>08</del> '44	
min. Earth dist.	-151 Sep 03 j 16:12	9° <del>47</del> '02	45.55417 AU				
opposition	-151 Sep 06 j 01:31	9° <del>44</del> '13	-17°-16'-8	conjunction	-142 Mar 12 j 15:07	18° <del>38</del> '38	-16°-52'-23
direct	-151 Nov 26 j 01:45	8° <del>42</del> '55		minimum elong	-142 Mar 12 j 15:09	18° <del>38</del> '38	16°52'24
				max. Earth dist.	-142 Mar 14 j 18:01	18° <del>41</del> '40	48.54602 AU
conjunction	-150 Mar 04 j 03:05	10° <del>15</del> '03	-16°-34'-52	retrograde	-142 Jun 23 j 18:27	20° <del>12</del> '30	
minimum elong	-150 Mar 04 j 03:03	10° <del>15</del> '03	16°34'54	min. Earth dist.	-142 Sep 13 j 18:19	19° <del>13</del> '02	46.69170 AU
max. Earth dist.	-150 Mar 06 j 14:13	10° <del>18</del> '39	47.53986 AU	opposition	-142 Sep 15 j 18:41	19° <del>10</del> '41	-17°-35'-33
retrograde	-150 Jun 15 j 12:38	11° <del>51</del> '17		direct	-142 Dec 05 j 21:24	18° <del>10</del> '17	
min. Earth dist.	-150 Sep 05 j 00:19	10° <del>51</del> '26	45.69895 AU				
opposition	-150 Sep 07 j 09:21	10° <del>48</del> '38	-17°-19'-35	conjunction	-141 Mar 13 j 22:05	19° <del>39</del> '57	-16°-53'-8
direct	-150 Nov 27 j 06:54	9° <del>47</del> '28		minimum elong	-141 Mar 13 j 22:08	19° <del>39</del> '57	16°53'09
				max. Earth dist.	-141 Mar 16 j 01:15	19° <del>43</del> '00	48.65588 AU
conjunction	-149 Mar 05 j 11:04	11° <del>19</del> '20	-16°-38'-9	retrograde	-141 Jun 25 j 00:44	21° <del>13</del> '36	
minimum elong	-149 Mar 05 j 11:04	11° <del>19</del> '20	16°38'10	min. Earth dist.	-141 Sep 15 j 01:36	20° <del>14</del> '12	46.80022 AU
max. Earth dist.	-149 Mar 07 j 21:34	11° <del>22</del> '54	47.68164 AU	opposition	-141 Sep 17 j 01:06	20° <del>11</del> '54	-17°-36'-3



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 17

Attention, astronomical year style is used: The year -141 in astronomical counting style is the year 142 BCE in historical counting style.

direct	-141 Dec 07 j 04:54	19° <del>✕</del> 11'37		minimum elong	-132 Mar 22 j 09:25	28° <del>✕</del> 44'00	16°46'39
				max. Earth dist.	-132 Mar 24 j 01:23	28° <del>✕</del> 46'19	49.47081 AU
conjunction	-140 Mar 14 j 04:51	20° <del>✕</del> 41'04	-16°-53'-33		-132 May 25 j 10:58	0° <del>Υ</del>	
minimum elong	-140 Mar 14 j 04:54	20° <del>✕</del> 41'04	16°53'33	retrograde	-132 Jul 03 j 10:07	0° <del>Υ</del> 15'44	
max. Earth dist.	-140 Mar 16 j 06:17	20° <del>✕</del> 44'00	48.76303 AU		-132 Aug 11 j 21:27	30° <del>℞</del> <del>✕</del>	
retrograde	-140 Jun 25 j 10:14	22° <del>✕</del> 14'29		min. Earth dist.	-132 Sep 23 j 17:54	29° <del>✕</del> 16'43	47.59463 AU
min. Earth dist.	-140 Sep 15 j 08:10	21° <del>✕</del> 15'12	46.90595 AU	opposition	-132 Sep 25 j 07:14	29° <del>✕</del> 14'56	-17°-27'-14
opposition	-140 Sep 17 j 07:31	21° <del>✕</del> 12'55	-17°-36'-13	direct	-132 Dec 15 j 10:43	28° <del>✕</del> 15'25	
direct	-140 Dec 07 j 08:25	20° <del>✕</del> 12'45					
				conjunction	-131 Mar 23 j 15:29	29° <del>✕</del> 43'13	-16°-44'-32
conjunction	-139 Mar 15 j 11:33	21° <del>✕</del> 42'01	-16°-53'-39	minimum elong	-131 Mar 23 j 15:34	29° <del>✕</del> 43'14	16°44'32
minimum elong	-139 Mar 15 j 11:36	21° <del>✕</del> 42'02	16°53'40	max. Earth dist.	-131 Mar 25 j 07:36	29° <del>✕</del> 45'33	49.53970 AU
max. Earth dist.	-139 Mar 17 j 12:49	21° <del>✕</del> 44'56	48.86708 AU		-131 Apr 04 j 17:42	0° <del>Υ</del>	
retrograde	-139 Jun 26 j 17:36	23° <del>✕</del> 15'14		retrograde	-131 Jul 04 j 14:08	1° <del>Υ</del> 14'46	
min. Earth dist.	-139 Sep 16 j 16:29	22° <del>✕</del> 15'59	47.00826 AU	min. Earth dist.	-131 Sep 25 j 00:05	0° <del>Υ</del> 15'47	47.66145 AU
opposition	-139 Sep 18 j 13:54	22° <del>✕</del> 13'48	-17°-36'-4	opposition	-131 Sep 26 j 12:41	0° <del>Υ</del> 14'02	-17°-24'-52
direct	-139 Dec 08 j 13:36	21° <del>✕</del> 13'46			-131 Oct 08 j 21:20	30° <del>℞</del> <del>✕</del>	
				direct	-131 Dec 16 j 18:46	29° <del>✕</del> 14'34	
conjunction	-138 Mar 16 j 18:23	22° <del>✕</del> 42'51	-16°-53'-27		-130 Feb 21 j 07:30	0° <del>Υ</del>	
minimum elong	-138 Mar 16 j 18:27	22° <del>✕</del> 42'51	16°53'27	conjunction	-130 Mar 24 j 21:32	0° <del>Υ</del> 42'11	-16°-42'-10
max. Earth dist.	-138 Mar 18 j 18:30	22° <del>✕</del> 45'42	48.96760 AU	minimum elong	-130 Mar 24 j 21:39	0° <del>Υ</del> 42'12	16°42'11
retrograde	-138 Jun 27 j 22:24	24° <del>✕</del> 15'51		max. Earth dist.	-130 Mar 26 j 11:47	0° <del>Υ</del> 44'25	49.60546 AU
min. Earth dist.	-138 Sep 17 j 22:42	23° <del>✕</del> 16'44	47.10658 AU	retrograde	-130 Jul 05 j 22:05	2° <del>Υ</del> 13'33	
opposition	-138 Sep 19 j 19:54	23° <del>✕</del> 14'34	-17°-35'-38	min. Earth dist.	-130 Sep 26 j 05:51	1° <del>Υ</del> 14'37	47.72534 AU
direct	-138 Dec 09 j 20:09	22° <del>✕</del> 14'38		opposition	-130 Sep 27 j 17:57	1° <del>Υ</del> 12'54	-17°-22'-11
				direct	-130 Dec 17 j 22:57	0° <del>Υ</del> 13'29	
conjunction	-137 Mar 18 j 01:02	23° <del>✕</del> 43'33	-16°-52'-58	conjunction	-129 Mar 26 j 03:33	1° <del>Υ</del> 40'57	-16°-39'-30
minimum elong	-137 Mar 18 j 01:06	23° <del>✕</del> 43'34	16°52'59	minimum elong	-129 Mar 26 j 03:39	1° <del>Υ</del> 40'57	16°39'31
max. Earth dist.	-137 Mar 19 j 23:21	23° <del>✕</del> 46'17	49.06373 AU	max. Earth dist.	-129 Mar 27 j 17:35	1° <del>Υ</del> 43'09	49.66826 AU
retrograde	-137 Jun 29 j 04:09	25° <del>✕</del> 16'22		retrograde	-129 Jul 07 j 05:26	3° <del>Υ</del> 12'08	
min. Earth dist.	-137 Sep 19 j 06:52	24° <del>✕</del> 17'17	47.20033 AU	opposition	-129 Sep 28 j 23:20	2° <del>Υ</del> 11'33	-17°-19'-13
opposition	-137 Sep 21 j 02:08	24° <del>✕</del> 15'12	-17°-34'-54	min. Earth dist.	-129 Sep 27 j 12:50	2° <del>Υ</del> 13'12	47.78623 AU
direct	-137 Dec 11 j 03:59	23° <del>✕</del> 15'23		direct	-129 Dec 19 j 02:44	1° <del>Υ</del> 12'12	
				conjunction	-128 Mar 26 j 09:21	2° <del>Υ</del> 39'32	-16°-36'-34
conjunction	-136 Mar 18 j 07:40	24° <del>✕</del> 44'07	-16°-52'-13	minimum elong	-128 Mar 26 j 09:28	2° <del>Υ</del> 39'32	16°36'35
minimum elong	-136 Mar 18 j 07:45	24° <del>✕</del> 44'08	16°52'14	max. Earth dist.	-128 Mar 27 j 22:26	2° <del>Υ</del> 41'40	49.72828 AU
max. Earth dist.	-136 Mar 20 j 05:42	24° <del>✕</del> 46'50	49.15504 AU	retrograde	-128 Jul 07 j 11:17	4° <del>Υ</del> 10'33	
retrograde	-136 Jun 29 j 09:54	26° <del>✕</del> 16'45		min. Earth dist.	-128 Sep 27 j 17:58	3° <del>Υ</del> 11'42	47.84407 AU
min. Earth dist.	-136 Sep 19 j 14:09	25° <del>✕</del> 17'42	47.28882 AU	opposition	-128 Sep 29 j 04:34	3° <del>Υ</del> 10'03	-17°-15'-58
opposition	-136 Sep 21 j 08:13	25° <del>✕</del> 15'41	-17°-33'-54	direct	-128 Dec 19 j 06:41	2° <del>Υ</del> 10'47	
direct	-136 Dec 11 j 12:10	24° <del>✕</del> 15'57					
				conjunction	-127 Mar 27 j 15:14	3° <del>Υ</del> 37'59	-16°-33'-21
conjunction	-135 Mar 19 j 14:15	25° <del>✕</del> 44'30	-16°-51'-13	minimum elong	-127 Mar 27 j 15:22	3° <del>Υ</del> 38'00	16°33'21
minimum elong	-135 Mar 19 j 14:18	25° <del>✕</del> 44'30	16°51'14	max. Earth dist.	-127 Mar 29 j 02:51	3° <del>Υ</del> 40'03	49.78502 AU
max. Earth dist.	-135 Mar 21 j 09:46	25° <del>✕</del> 47'03	49.24117 AU	retrograde	-127 Jul 08 j 15:54	5° <del>Υ</del> 08'52	
retrograde	-135 Jun 30 j 19:43	27° <del>✕</del> 16'54		min. Earth dist.	-127 Sep 29 j 01:00	4° <del>Υ</del> 10'01	47.89853 AU
min. Earth dist.	-135 Sep 20 j 20:51	26° <del>✕</del> 17'54	47.37217 AU	opposition	-127 Sep 30 j 09:45	4° <del>Υ</del> 08'27	-17°-12'-26
opposition	-135 Sep 22 j 14:07	26° <del>✕</del> 15'56	-17°-32'-39	direct	-127 Dec 20 j 13:00	3° <del>Υ</del> 09'16	
direct	-135 Dec 12 j 15:21	25° <del>✕</del> 16'16					
				conjunction	-126 Mar 28 j 21:17	4° <del>Υ</del> 36'22	-16°-29'-52
conjunction	-134 Mar 20 j 20:48	26° <del>✕</del> 44'37	-16°-49'-57	minimum elong	-126 Mar 28 j 21:24	4° <del>Υ</del> 36'22	16°29'54
minimum elong	-134 Mar 20 j 20:55	26° <del>✕</del> 44'38	16°49'58	max. Earth dist.	-126 Mar 30 j 08:41	4° <del>Υ</del> 38'24	49.83813 AU
max. Earth dist.	-134 Mar 22 j 15:42	26° <del>✕</del> 47'08	49.32215 AU	retrograde	-126 Jul 09 j 19:14	6° <del>Υ</del> 07'07	
retrograde	-134 Jul 02 j 02:37	28° <del>✕</del> 16'49		min. Earth dist.	-126 Sep 30 j 07:04	5° <del>Υ</del> 08'18	47.94881 AU
min. Earth dist.	-134 Sep 22 j 04:56	27° <del>✕</del> 17'46	47.45047 AU	opposition	-126 Oct 01 j 14:49	5° <del>Υ</del> 06'48	-17°-8'-38
opposition	-134 Sep 23 j 20:01	27° <del>✕</del> 15'54	-17°-31'-7	direct	-126 Dec 21 j 20:58	4° <del>Υ</del> 07'40	
direct	-134 Dec 13 j 20:21	26° <del>✕</del> 16'18					
				conjunction	-125 Mar 30 j 03:07	5° <del>Υ</del> 34'41	-16°-26'-8
conjunction	-133 Mar 22 j 03:09	27° <del>✕</del> 44'27	-16°-48'-25	minimum elong	-125 Mar 30 j 03:15	5° <del>Υ</del> 34'41	16°26'09
minimum elong	-133 Mar 22 j 03:13	27° <del>✕</del> 44'28	16°48'26	max. Earth dist.	-125 Mar 31 j 12:06	5° <del>Υ</del> 36'35	49.88679 AU
max. Earth dist.	-133 Mar 23 j 20:48	27° <del>✕</del> 46'53	49.39853 AU	retrograde	-125 Jul 11 j 03:25	7° <del>Υ</del> 05'19	
retrograde	-133 Jul 03 j 06:07	29° <del>✕</del> 16'25		opposition	-125 Oct 02 j 19:53	6° <del>Υ</del> 05'05	-17°-4'-35
min. Earth dist.	-133 Sep 23 j 10:39	28° <del>✕</del> 17'26	47.52439 AU	min. Earth dist.	-125 Oct 01 j 13:05	6° <del>Υ</del> 06'33	47.99441 AU
opposition	-133 Sep 25 j 01:35	28° <del>✕</del> 15'34	-17°-29'-19	direct	-125 Dec 23 j 00:26	5° <del>Υ</del> 06'02	
direct	-133 Dec 15 j 03:23	27° <del>✕</del> 16'00					
conjunction	-132 Mar 22 j 09:18	28° <del>✕</del> 43'59	-16°-46'-37				



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 18

Attention, astronomical year style is used: The year -124 in astronomical counting style is the year 125 BCE in historical counting style.

conjunction	-124 Mar 30 j 09:06	6°Y32'56	-16°-22'-10	retrograde	-116 Jul 18 j 23:57	15°Y43'42	
minimum elong	-124 Mar 30 j 09:13	6°Y32'56	16°22'11	opposition	-116 Oct 10 j 14:48	14°Y43'53	-16°-17'-13
max. Earth dist.	-124 Mar 31 j 17:19	6°Y34'47	49.93039 AU	min. Earth dist.	-116 Oct 09 j 18:31	14°Y44'50	48.19332 AU
retrograde	-124 Jul 11 j 10:38	8°Y03'27		direct	-116 Dec 30 j 23:17	13°Y45'05	
min. Earth dist.	-124 Oct 01 j 20:31	7°Y04'38	48.03463 AU				
opposition	-124 Oct 03 j 01:01	7°Y03'17	-17°00'-18	conjunction	-115 Apr 08 j 11:44	15°Y11'17	-15°-35'-41
direct	-124 Dec 23 j 04:26	6°Y04'17		minimum elong	-115 Apr 08 j 11:54	15°Y11'17	15°35'42
				max. Earth dist.	-115 Apr 09 j 08:37	15°Y12'28	50.11918 AU
conjunction	-123 Mar 31 j 15:01	7°Y31'06	-16°-17'-58	retrograde	-115 Jul 20 j 06:53	16°Y40'50	
minimum elong	-123 Mar 31 j 15:11	7°Y31'06	16°17'59	opposition	-115 Oct 11 j 19:20	15°Y41'05	-16°-10'-39
max. Earth dist.	-123 Apr 01 j 21:37	7°Y32'51	49.96869 AU	min. Earth dist.	-115 Oct 10 j 23:55	15°Y42'00	48.19774 AU
retrograde	-123 Jul 12 j 15:20	9°Y01'28		direct	-114 Jan 01 j 03:31	14°Y42'19	
min. Earth dist.	-123 Oct 03 j 01:54	8°Y02'42	48.06935 AU				
opposition	-123 Oct 04 j 05:59	8°Y01'22	-16°-55'-47	conjunction	-114 Apr 09 j 17:19	16°Y08'29	-15°-29'-15
direct	-123 Dec 24 j 09:30	7°Y02'24		minimum elong	-114 Apr 09 j 17:29	16°Y08'30	15°29'15
				max. Earth dist.	-114 Apr 10 j 13:46	16°Y09'39	50.12269 AU
conjunction	-122 Apr 01 j 20:52	8°Y29'07	-16°-13'-33	retrograde	-114 Jul 21 j 14:19	17°Y38'00	
minimum elong	-122 Apr 01 j 20:59	8°Y29'07	16°13'33	opposition	-114 Oct 12 j 23:46	16°Y38'17	-16°-3'-50
max. Earth dist.	-122 Apr 03 j 01:18	8°Y30'45	50.00143 AU	min. Earth dist.	-114 Oct 12 j 06:20	16°Y39'07	48.19814 AU
retrograde	-122 Jul 13 j 19:12	9°Y59'21		direct	-113 Jan 02 j 06:44	15°Y39'33	
min. Earth dist.	-122 Oct 04 j 08:58	9°Y00'32	48.09880 AU				
opposition	-122 Oct 05 j 10:52	8°Y59'18	-16°-51'-3	conjunction	-113 Apr 10 j 22:52	17°Y05'43	-15°-22'-35
direct	-122 Dec 25 j 15:53	8°Y00'22		minimum elong	-113 Apr 10 j 23:01	17°Y05'43	15°22'36
				max. Earth dist.	-113 Apr 11 j 17:49	17°Y06'47	50.12208 AU
conjunction	-121 Apr 03 j 02:42	9°Y26'58	-16°-8'-53	retrograde	-113 Jul 22 j 20:11	18°Y35'10	
minimum elong	-121 Apr 03 j 02:52	9°Y26'59	16°08'54	min. Earth dist.	-113 Oct 13 j 11:08	17°Y36'19	48.19405 AU
max. Earth dist.	-121 Apr 04 j 06:50	9°Y28'35	50.02927 AU	opposition	-113 Oct 14 j 04:12	17°Y35'30	-15°-56'-47
retrograde	-121 Jul 14 j 22:15	10°Y57'05		direct	-112 Jan 03 j 09:37	16°Y36'47	
opposition	-121 Oct 06 j 15:39	9°Y57'04	-16°-46'-4				
min. Earth dist.	-121 Oct 05 j 14:39	9°Y58'15	48.12346 AU	conjunction	-112 Apr 11 j 04:15	18°Y02'56	-15°-15'-41
direct	-121 Dec 26 j 23:39	8°Y58'09		minimum elong	-112 Apr 11 j 04:26	18°Y02'57	15°15'41
				max. Earth dist.	-112 Apr 11 j 21:11	18°Y03'54	50.11652 AU
conjunction	-120 Apr 03 j 08:09	10°Y24'39	-16°-4'00	retrograde	-112 Jul 23 j 00:41	19°Y32'20	
minimum elong	-120 Apr 03 j 08:17	10°Y24'40	16°04'00	opposition	-112 Oct 14 j 08:49	18°Y32'42	-15°-49'-30
max. Earth dist.	-120 Apr 04 j 10:08	10°Y26'08	50.05271 AU	min. Earth dist.	-112 Oct 13 j 17:58	18°Y33'24	48.18481 AU
retrograde	-120 Jul 15 j 05:12	11°Y54'39		direct	-111 Jan 03 j 14:43	17°Y33'59	
opposition	-120 Oct 06 j 20:27	10°Y54'40	-16°-40'-49				
min. Earth dist.	-120 Oct 05 j 20:17	10°Y55'49	48.14412 AU	conjunction	-111 Apr 12 j 09:58	19°Y00'07	-15°-8'-35
direct	-120 Dec 27 j 03:44	9°Y55'46		minimum elong	-111 Apr 12 j 10:08	19°Y00'07	15°08'35
				max. Earth dist.	-111 Apr 13 j 02:18	19°Y01'02	50.10576 AU
conjunction	-119 Apr 04 j 13:49	11°Y22'11	-15°-58'-51	retrograde	-111 Jul 24 j 02:28	20°Y29'26	
minimum elong	-119 Apr 04 j 13:59	11°Y22'11	15°58'52	opposition	-111 Oct 15 j 13:09	19°Y29'49	-15°-42'-1
max. Earth dist.	-119 Apr 05 j 15:26	11°Y23'38	50.07229 AU	min. Earth dist.	-111 Oct 14 j 23:23	19°Y30'28	48.17013 AU
retrograde	-119 Jul 16 j 12:01	12°Y52'04		direct	-110 Jan 04 j 22:34	18°Y31'06	
min. Earth dist.	-119 Oct 07 j 02:39	11°Y53'10	48.16110 AU				
opposition	-119 Oct 08 j 01:05	11°Y52'07	-16°-35'-19	conjunction	-110 Apr 13 j 15:32	19°Y57'11	-15°-1'-15
direct	-119 Dec 28 j 07:10	10°Y53'14		minimum elong	-110 Apr 13 j 15:44	19°Y57'12	15°01'16
				max. Earth dist.	-110 Apr 14 j 05:17	19°Y57'58	50.08970 AU
conjunction	-118 Apr 05 j 19:27	12°Y19'34	-15°-53'-27	retrograde	-110 Jul 25 j 08:09	21°Y26'27	
minimum elong	-118 Apr 05 j 19:36	12°Y19'35	15°53'27	opposition	-110 Oct 16 j 17:36	20°Y26'50	-15°-34'-18
max. Earth dist.	-118 Apr 06 j 19:52	12°Y20'58	50.08861 AU	min. Earth dist.	-110 Oct 16 j 05:02	20°Y27'25	48.15038 AU
retrograde	-118 Jul 17 j 18:23	13°Y49'21		direct	-109 Jan 06 j 03:11	19°Y28'05	
min. Earth dist.	-118 Oct 08 j 07:10	12°Y50'30	48.17487 AU				
opposition	-118 Oct 09 j 05:39	12°Y49'26	-16°-29'-33	conjunction	-109 Apr 14 j 20:59	20°Y54'08	-14°-53'-43
direct	-118 Dec 29 j 09:49	11°Y50'34		minimum elong	-109 Apr 14 j 21:09	20°Y54'08	14°53'43
				max. Earth dist.	-109 Apr 15 j 10:00	20°Y54'52	50.06865 AU
conjunction	-117 Apr 07 j 00:48	13°Y16'52	-15°-47'-47	retrograde	-109 Jul 26 j 13:49	22°Y23'21	
minimum elong	-117 Apr 07 j 00:58	13°Y16'52	15°47'48	opposition	-109 Oct 17 j 22:00	21°Y23'42	-15°-26'-21
max. Earth dist.	-117 Apr 07 j 23:49	13°Y18'10	50.10173 AU	min. Earth dist.	-109 Oct 17 j 11:17	21°Y24'13	48.12589 AU
retrograde	-117 Jul 18 j 22:27	14°Y46'33		direct	-108 Jan 07 j 07:57	20°Y24'55	
opposition	-117 Oct 10 j 10:19	13°Y46'41	-16°-23'-31				
min. Earth dist.	-117 Oct 09 j 13:34	13°Y47'40	48.18563 AU	conjunction	-108 Apr 15 j 02:27	21°Y50'57	-14°-45'-56
direct	-117 Dec 30 j 15:04	12°Y47'51		minimum elong	-108 Apr 15 j 02:39	21°Y50'57	14°45'57
				max. Earth dist.	-108 Apr 15 j 14:13	21°Y51'37	50.04341 AU
conjunction	-116 Apr 07 j 06:21	14°Y14'05	-15°-41'-52	retrograde	-108 Jul 26 j 20:28	23°Y20'06	
minimum elong	-116 Apr 07 j 06:31	14°Y14'05	15°41'52	opposition	-108 Oct 18 j 02:12	22°Y20'27	-15°-18'-10
max. Earth dist.	-116 Apr 08 j 05:20	14°Y15'23	50.11201 AU	min. Earth dist.	-108 Oct 17 j 15:41	22°Y20'56	48.09744 AU



Attention, astronomical year style is used: The year -107 in astronomical counting style is the year 108 BCE in historical counting style.

direct	-107 Jan 07 j 10:28	21° $\Upsilon$ 21'37			-99 Apr 07 j 08:21	0° $\mathcal{B}$	
conjunction	-107 Apr 16 j 07:50	22° $\Upsilon$ 47'39	-14°-37'-55	conjunction	-99 Apr 24 j 04:03	0° $\mathcal{B}$ 22'36	-13°-24'-57
minimum elong	-107 Apr 16 j 08:01	22° $\Upsilon$ 47'39	14°37'56	minimum elong	-99 Apr 24 j 04:15	0° $\mathcal{B}$ 22'37	13°24'57
max. Earth dist.	-107 Apr 16 j 17:55	22° $\Upsilon$ 48'13	50.01434 AU	max. Earth dist.	-99 Apr 24 j 04:59	0° $\mathcal{B}$ 22'40	49.66414 AU
retrograde	-107 Jul 28 j 01:32	24° $\Upsilon$ 16'45		retrograde	-99 Aug 04 j 17:11	1° $\mathcal{B}$ 51'55	
opposition	-107 Oct 19 j 06:34	23° $\Upsilon$ 17'05	-15°-9'-43	opposition	-99 Oct 26 j 17:09	0° $\mathcal{B}$ 52'23	-13°-53'-4
min. Earth dist.	-107 Oct 18 j 21:59	23° $\Upsilon$ 17'29	48.06549 AU	min. Earth dist.	-99 Oct 26 j 17:39	0° $\mathcal{B}$ 52'21	47.68895 AU
direct	-106 Jan 08 j 14:25	22° $\Upsilon$ 18'14			-99 Dec 22 j 11:06	30° $\mathcal{R}\Upsilon$	
				direct	-98 Jan 16 j 05:11	29° $\Upsilon$ 53'27	
conjunction	-106 Apr 17 j 13:22	23° $\Upsilon$ 44'16	-14°-29'-40		-98 Feb 09 j 17:09	0° $\mathcal{B}$	
minimum elong	-106 Apr 17 j 13:34	23° $\Upsilon$ 44'16	14°29'41				
max. Earth dist.	-106 Apr 17 j 23:20	23° $\Upsilon$ 44'49	49.98203 AU	conjunction	-98 Apr 25 j 09:50	1° $\mathcal{B}$ 20'01	-13°-14'-48
retrograde	-106 Jul 29 j 03:04	25° $\Upsilon$ 13'20		minimum elong	-98 Apr 25 j 10:01	1° $\mathcal{B}$ 20'01	13°14'48
opposition	-106 Oct 20 j 10:42	24° $\Upsilon$ 13'40	-15°-1'-1	max. Earth dist.	-98 Apr 25 j 09:05	1° $\mathcal{B}$ 19'58	49.60064 AU
min. Earth dist.	-106 Oct 20 j 02:30	24° $\Upsilon$ 14'03	48.03034 AU	retrograde	-98 Aug 06 j 00:58	2° $\mathcal{B}$ 49'21	
direct	-105 Jan 09 j 21:57	23° $\Upsilon$ 14'48		opposition	-98 Oct 27 j 21:27	1° $\mathcal{B}$ 49'47	-13°-42'-26
				min. Earth dist.	-98 Oct 27 j 22:30	1° $\mathcal{B}$ 49'44	47.62138 AU
conjunction	-105 Apr 18 j 18:41	24° $\Upsilon$ 40'51	-14°-21'-9	direct	-97 Jan 17 j 07:13	0° $\mathcal{B}$ 50'49	
minimum elong	-105 Apr 18 j 18:52	24° $\Upsilon$ 40'51	14°21'09				
max. Earth dist.	-105 Apr 19 j 02:38	24° $\Upsilon$ 41'18	49.94682 AU	conjunction	-97 Apr 26 j 15:31	2° $\mathcal{B}$ 17'27	-13°-4'-25
retrograde	-105 Jul 30 j 08:34	26° $\Upsilon$ 09'55		minimum elong	-97 Apr 26 j 15:44	2° $\mathcal{B}$ 17'28	13°04'26
opposition	-105 Oct 21 j 15:01	25° $\Upsilon$ 10'16	-14°-52'-4	max. Earth dist.	-97 Apr 26 j 12:45	2° $\mathcal{B}$ 17'18	49.53203 AU
min. Earth dist.	-105 Oct 21 j 07:33	25° $\Upsilon$ 10'37	47.99249 AU	retrograde	-97 Aug 07 j 07:40	3° $\mathcal{B}$ 46'49	
direct	-104 Jan 11 j 02:31	24° $\Upsilon$ 11'23		opposition	-97 Oct 29 j 01:57	2° $\mathcal{B}$ 47'13	-13°-31'-34
				min. Earth dist.	-97 Oct 29 j 05:11	2° $\mathcal{B}$ 47'04	47.54906 AU
conjunction	-104 Apr 19 j 00:01	25° $\Upsilon$ 37'28	-14°-12'-23	direct	-96 Jan 18 j 10:04	1° $\mathcal{B}$ 48'10	
minimum elong	-104 Apr 19 j 00:12	25° $\Upsilon$ 37'29	14°12'24				
max. Earth dist.	-104 Apr 19 j 07:47	25° $\Upsilon$ 37'54	49.90880 AU	conjunction	-96 Apr 26 j 21:13	3° $\mathcal{B}$ 14'53	-12°-53'-49
retrograde	-104 Jul 30 j 15:23	27° $\Upsilon$ 06'33		minimum elong	-96 Apr 26 j 21:25	3° $\mathcal{B}$ 14'54	12°53'50
opposition	-104 Oct 21 j 19:24	26° $\Upsilon$ 06'55	-14°-42'-50	max. Earth dist.	-96 Apr 26 j 18:05	3° $\mathcal{B}$ 14'43	49.45902 AU
min. Earth dist.	-104 Oct 21 j 13:31	26° $\Upsilon$ 07'12	47.95168 AU	retrograde	-96 Aug 07 j 09:26	4° $\mathcal{B}$ 44'18	
direct	-103 Jan 11 j 05:53	25° $\Upsilon$ 08'03		opposition	-96 Oct 29 j 06:21	3° $\mathcal{B}$ 44'39	-13°-20'-28
				min. Earth dist.	-96 Oct 29 j 10:07	3° $\mathcal{B}$ 44'28	47.47244 AU
conjunction	-103 Apr 20 j 05:31	26° $\Upsilon$ 34'11	-14°-3'-22	direct	-95 Jan 18 j 17:55	2° $\mathcal{B}$ 45'31	
minimum elong	-103 Apr 20 j 05:43	26° $\Upsilon$ 34'12	14°03'22				
max. Earth dist.	-103 Apr 20 j 12:05	26° $\Upsilon$ 34'33	49.86796 AU	conjunction	-95 Apr 28 j 02:58	4° $\mathcal{B}$ 12'19	-12°-42'-59
retrograde	-103 Jul 31 j 22:00	28° $\Upsilon$ 03'18		minimum elong	-95 Apr 28 j 03:11	4° $\mathcal{B}$ 12'20	12°43'01
opposition	-103 Oct 22 j 23:32	27° $\Upsilon$ 03'42	-14°-33'-21	max. Earth dist.	-95 Apr 27 j 21:37	4° $\mathcal{B}$ 12'01	49.38201 AU
min. Earth dist.	-103 Oct 22 j 17:43	27° $\Upsilon$ 03'58	47.90781 AU	retrograde	-95 Aug 08 j 13:04	5° $\mathcal{B}$ 41'47	
direct	-102 Jan 12 j 07:56	26° $\Upsilon$ 04'49		opposition	-95 Oct 30 j 10:40	4° $\mathcal{B}$ 42'04	-13°-9'-7
				min. Earth dist.	-95 Oct 30 j 15:39	4° $\mathcal{B}$ 41'50	47.39222 AU
conjunction	-102 Apr 21 j 11:02	27° $\Upsilon$ 31'03	-13°-54'-6	direct	-94 Jan 20 j 00:16	3° $\mathcal{B}$ 42'52	
minimum elong	-102 Apr 21 j 11:13	27° $\Upsilon$ 31'03	13°54'08				
max. Earth dist.	-102 Apr 21 j 15:50	27° $\Upsilon$ 31'19	49.82365 AU	conjunction	-94 Apr 29 j 08:52	5° $\mathcal{B}$ 09'46	-12°-31'-55
retrograde	-102 Aug 02 j 03:04	29° $\Upsilon$ 00'12		minimum elong	-94 Apr 29 j 09:03	5° $\mathcal{B}$ 09'47	12°31'55
opposition	-102 Oct 24 j 03:57	28° $\Upsilon$ 00'38	-14°-23'-38	max. Earth dist.	-94 Apr 29 j 03:04	5° $\mathcal{B}$ 09'27	49.30147 AU
min. Earth dist.	-102 Oct 24 j 00:14	28° $\Upsilon$ 00'48	47.86026 AU	retrograde	-94 Aug 09 j 18:46	6° $\mathcal{B}$ 39'18	
direct	-101 Jan 13 j 12:31	27° $\Upsilon$ 01'46		opposition	-94 Oct 31 j 15:13	5° $\mathcal{B}$ 39'32	-12°-57'-31
				min. Earth dist.	-94 Oct 31 j 21:41	5° $\mathcal{B}$ 39'14	47.30862 AU
conjunction	-101 Apr 22 j 16:36	28° $\Upsilon$ 28'05	-13°-44'-36	direct	-93 Jan 21 j 05:22	4° $\mathcal{B}$ 40'16	
minimum elong	-101 Apr 22 j 16:48	28° $\Upsilon$ 28'06	13°44'37				
max. Earth dist.	-101 Apr 22 j 21:08	28° $\Upsilon$ 28'20	49.77537 AU	conjunction	-93 Apr 30 j 14:33	6° $\mathcal{B}$ 07'16	-12°-20'-35
retrograde	-101 Aug 03 j 05:07	29° $\Upsilon$ 57'17		minimum elong	-93 Apr 30 j 14:45	6° $\mathcal{B}$ 07'16	12°20'37
opposition	-101 Oct 25 j 08:16	28° $\Upsilon$ 57'44	-14°-13'-40	max. Earth dist.	-93 Apr 30 j 07:36	6° $\mathcal{B}$ 06'52	49.21794 AU
min. Earth dist.	-101 Oct 25 j 05:21	28° $\Upsilon$ 57'53	47.80825 AU	retrograde	-93 Aug 11 j 02:19	7° $\mathcal{B}$ 36'51	
direct	-100 Jan 14 j 19:58	27° $\Upsilon$ 58'52		opposition	-93 Nov 01 j 19:41	6° $\mathcal{B}$ 37'03	-12°-45'-39
				min. Earth dist.	-93 Nov 02 j 02:05	6° $\mathcal{B}$ 36'45	47.22212 AU
conjunction	-100 Apr 22 j 22:13	29° $\Upsilon$ 25'17	-13°-34'-53	direct	-92 Jan 22 j 07:36	5° $\mathcal{B}$ 37'43	
minimum elong	-100 Apr 22 j 22:24	29° $\Upsilon$ 25'18	13°34'54				
max. Earth dist.	-100 Apr 23 j 00:08	29° $\Upsilon$ 25'23	49.72238 AU	conjunction	-92 Apr 30 j 20:23	7° $\mathcal{B}$ 04'50	-12°-9'-1
	-100 May 19 j 03:09	0° $\mathcal{B}$		minimum elong	-92 Apr 30 j 20:35	7° $\mathcal{B}$ 04'51	12°09'01
retrograde	-100 Aug 03 j 11:07	0° $\mathcal{B}$ 54'33		max. Earth dist.	-92 Apr 30 j 11:51	7° $\mathcal{B}$ 04'21	49.13145 AU
	-100 Oct 21 j 03:01	30° $\mathcal{R}\Upsilon$		retrograde	-92 Aug 11 j 08:34	8° $\mathcal{B}$ 34'31	
opposition	-100 Oct 25 j 12:39	29° $\Upsilon$ 55'00	-14°-3'-29	opposition	-92 Nov 02 j 00:17	7° $\mathcal{B}$ 34'41	-12°-33'-31
min. Earth dist.	-100 Oct 25 j 11:09	29° $\Upsilon$ 55'05	47.75135 AU	min. Earth dist.	-92 Nov 02 j 08:33	7° $\mathcal{B}$ 34'17	47.13274 AU
direct	-99 Jan 15 j 00:21	28° $\Upsilon$ 56'07		direct	-91 Jan 22 j 11:24	6° $\mathcal{B}$ 35'17	



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 20

Attention, astronomical year style is used: The year -91 in astronomical counting style is the year 92 BCE in historical counting style.

conjunction	-91 May 02 j 02:28	8°8'02"33	-11°-57'-11			-83 Mar 31 j 16:23	15°8'	
minimum elong	-91 May 02 j 02:40	8°8'02"34	11°57'12	max. Earth dist.		-83 May 09 j 08:42	15°8'50"13	48.16843 AU
max. Earth dist.	-91 May 01 j 17:50	8°8'02"04	49.04210 AU					
retrograde	-91 Aug 12 j 11:49	9°8'32"20		conjunction		-83 May 10 j 05:34	15°8'51"25	-10°-14'-3
opposition	-91 Nov 03 j 04:52	8°8'32"28	-12°-21'-7	minimum elong		-83 May 10 j 05:45	15°8'51"26	10°14'03
min. Earth dist.	-91 Nov 03 j 13:37	8°8'32"03	47.04016 AU	retrograde		-83 Aug 20 j 13:22	17°8'22"21	
direct	-90 Jan 23 j 18:17	7°8'33"01		opposition		-83 Nov 10 j 20:08	16°8'22"00	-10°-33'-13
				min. Earth dist.		-83 Nov 11 j 15:03	16°8'21"06	46.13610 AU
				direct		-82 Jan 31 j 10:04	15°8'21"48	
conjunction	-90 May 03 j 08:27	9°8'00"27	-11°-45'-6					
minimum elong	-90 May 03 j 08:39	9°8'00"28	11°45'06					
max. Earth dist.	-90 May 02 j 21:30	8°8'59"50	48.94934 AU	conjunction		-82 May 11 j 12:11	16°8'50"47	-10°00'-5
retrograde	-90 Aug 13 j 17:29	10°8'30"22		minimum elong		-82 May 11 j 12:23	16°8'50"48	10°00'06
opposition	-90 Nov 04 j 09:28	9°8'30"28	-12°-8'-29	max. Earth dist.		-82 May 10 j 13:43	16°8'49"30	48.03938 AU
min. Earth dist.	-90 Nov 04 j 19:29	9°8'30"00	46.94402 AU	retrograde		-82 Aug 21 j 20:35	18°8'21"54	
direct	-89 Jan 24 j 23:21	8°8'30"58		opposition		-82 Nov 12 j 01:20	17°8'21"27	-10°-18'-36
				min. Earth dist.		-82 Nov 12 j 22:12	17°8'20"27	46.00412 AU
				direct		-81 Feb 01 j 14:09	16°8'21"08	
conjunction	-89 May 04 j 14:41	9°8'58"35	-11°-32'-47					
minimum elong	-89 May 04 j 14:52	9°8'58"35	11°32'48					
max. Earth dist.	-89 May 04 j 03:03	9°8'57"55	48.85257 AU	conjunction		-81 May 12 j 18:59	17°8'50"22	-9°-45'-51
retrograde	-89 Aug 14 j 22:41	11°8'28"38		minimum elong		-81 May 12 j 19:10	17°8'50"22	9°45'52
opposition	-89 Nov 05 j 14:17	10°8'28"43	-11°-55'-35	max. Earth dist.		-81 May 11 j 20:26	17°8'49"03	47.90753 AU
min. Earth dist.	-89 Nov 06 j 02:05	10°8'28"09	46.84347 AU	retrograde		-81 Aug 23 j 01:20	19°8'21"39	
direct	-88 Jan 26 j 05:05	9°8'29"09		opposition		-81 Nov 13 j 06:34	18°8'21"07	-10°-3'-42
				min. Earth dist.		-81 Nov 14 j 03:32	18°8'20"06	45.86942 AU
				direct		-80 Feb 02 j 21:27	17°8'20"41	
conjunction	-88 May 04 j 20:54	10°8'56"56	-11°-20'-14	max. Earth dist.		-80 May 12 j 01:00	18°8'48"44	47.77308 AU
minimum elong	-88 May 04 j 21:06	10°8'56"57	11°20'14					
max. Earth dist.	-88 May 04 j 07:41	10°8'56"11	48.75123 AU					
retrograde	-88 Aug 15 j 06:43	12°8'27"08		conjunction		-80 May 13 j 01:39	18°8'50"10	-9°-31'-22
opposition	-88 Nov 05 j 19:06	11°8'27"10	-11°-42'-27	minimum elong		-80 May 13 j 01:51	18°8'50"11	9°31'23
min. Earth dist.	-88 Nov 06 j 07:32	11°8'26"35	46.73799 AU	retrograde		-80 Aug 23 j 07:09	20°8'21"40	
direct	-87 Jan 26 j 08:08	10°8'27"32		opposition		-80 Nov 13 j 11:58	19°8'21"04	-9°-48'-32
max. Earth dist.	-87 May 05 j 11:48	11°8'54"37	48.64454 AU	min. Earth dist.		-80 Nov 14 j 10:03	19°8'19"59	45.73223 AU
				direct		-79 Feb 03 j 03:56	18°8'20"31	
				max. Earth dist.		-79 May 13 j 07:49	19°8'48"49	47.63598 AU
conjunction	-87 May 06 j 03:22	11°8'55"31	-11°-7'-27					
minimum elong	-87 May 06 j 03:33	11°8'55"32	11°07'28					
retrograde	-87 Aug 16 j 14:58	13°8'25"51		conjunction		-79 May 14 j 08:45	19°8'50"16	-9°-16'-37
opposition	-87 Nov 07 j 00:02	12°8'25"50	-11°-29'-6	minimum elong		-79 May 14 j 08:57	19°8'50"17	9°16'37
min. Earth dist.	-87 Nov 07 j 14:56	12°8'25"07	46.62713 AU	retrograde		-79 Aug 24 j 12:01	21°8'22"01	
direct	-86 Jan 27 j 11:12	11°8'26"06		opposition		-79 Nov 14 j 17:24	20°8'21"20	-9°-33'-5
				min. Earth dist.		-79 Nov 15 j 16:46	20°8'20"11	45.59224 AU
				direct		-78 Feb 04 j 10:59	19°8'20"41	
conjunction	-86 May 07 j 09:59	12°8'54"16	-10°-54'-27					
minimum elong	-86 May 07 j 10:11	12°8'54"17	10°54'28					
max. Earth dist.	-86 May 06 j 17:44	12°8'53"21	48.53258 AU	conjunction		-78 May 15 j 15:54	20°8'50"43	-9°-1'-36
retrograde	-86 Aug 17 j 18:56	14°8'24"44		minimum elong		-78 May 15 j 16:05	20°8'50"44	9°01'38
opposition	-86 Nov 08 j 05:00	13°8'24"39	-11°-15'-30	max. Earth dist.		-78 May 14 j 13:40	20°8'49"11	47.49610 AU
min. Earth dist.	-86 Nov 08 j 20:34	13°8'23"54	46.51097 AU	retrograde		-78 Aug 25 j 20:38	22°8'22"43	
direct	-85 Jan 28 j 18:28	12°8'24"49		opposition		-78 Nov 15 j 22:57	21°8'21"58	-9°-17'-21
				min. Earth dist.		-78 Nov 16 j 22:42	21°8'20"48	45.44924 AU
				direct		-77 Feb 05 j 14:54	20°8'21"12	
conjunction	-85 May 08 j 16:17	13°8'53"11	-10°-41'-13					
minimum elong	-85 May 08 j 16:28	13°8'53"11	10°41'14					
max. Earth dist.	-85 May 07 j 21:33	13°8'52"06	48.41554 AU	conjunction		-77 May 16 j 23:02	21°8'51"33	-8°-46'-20
	-85 Jul 01 j 22:03	15°8'		minimum elong		-77 May 16 j 23:13	21°8'51"34	8°46'20
retrograde	-85 Aug 18 j 23:36	15°8'23"48		max. Earth dist.		-77 May 15 j 19:03	21°8'49"55	47.35265 AU
	-85 Oct 06 j 12:38	15°8'		retrograde		-77 Aug 27 j 07:12	23°8'23"49	
opposition	-85 Nov 09 j 10:03	14°8'23"37	-11°-1'-39	opposition		-77 Nov 17 j 04:46	22°8'22"58	-9°-1'-22
min. Earth dist.	-85 Nov 10 j 03:09	14°8'22"48	46.39009 AU	min. Earth dist.		-77 Nov 18 j 06:41	22°8'21"42	45.30241 AU
direct	-84 Jan 30 j 00:55	13°8'23"40		direct		-76 Feb 06 j 17:25	21°8'22"06	
				max. Earth dist.		-76 May 16 j 02:05	22°8'51"06	47.20512 AU
conjunction	-84 May 08 j 22:55	14°8'52"14	-10°-27'-45					
minimum elong	-84 May 08 j 23:08	14°8'52"14	10°27'47	conjunction		-76 May 17 j 06:38	22°8'52"46	-8°-30'-48
max. Earth dist.	-84 May 08 j 03:31	14°8'51"07	48.29391 AU	minimum elong		-76 May 17 j 06:48	22°8'52"47	8°30'50
	-84 May 14 j 13:50	15°8'		retrograde		-76 Aug 27 j 14:13	24°8'25"17	
retrograde	-84 Aug 19 j 04:51	16°8'23"00		opposition		-76 Nov 17 j 10:32	23°8'24"21	-8°-45'-6
opposition	-84 Nov 09 j 15:05	15°8'22"44	-10°-47'-34	min. Earth dist.		-76 Nov 18 j 13:01	23°8'23"03	45.15109 AU
min. Earth dist.	-84 Nov 10 j 09:47	15°8'21"50	46.26489 AU	direct		-75 Feb 06 j 23:47	22°8'23"20	
	-84 Nov 29 j 18:18	15°8'		max. Earth dist.		-75 May 17 j 07:04	23°8'52"30	47.05282 AU
direct	-83 Jan 30 j 07:18	14°8'22"40						



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 21

Attention, astronomical year style is used: The year -75 in astronomical counting style is the year 76 BCE in historical counting style.

conjunction	-75 May 18 j 14:17	23°♄54'20	-8°-15'-2	max. Earth dist.	-67 May 25 j 15:13	2°♂14'57	45.68934 AU
minimum elong	-75 May 18 j 14:28	23°♄54'20	8°15'03				
retrograde	-75 Aug 28 j 20:38	25°♄27'06		conjunction	-67 May 27 j 08:14	2°♂17'25	-5°-59'-36
opposition	-75 Nov 18 j 16:36	24°♄26'03	-8°-28'-35	minimum elong	-67 May 27 j 08:23	2°♂17'26	5°59'38
min. Earth dist.	-75 Nov 19 j 20:55	24°♄24'40	44.99493 AU	retrograde	-67 Sep 06 j 10:45	3°♂52'38	
direct	-74 Feb 08 j 06:58	23°♄24'53		opposition	-67 Nov 26 j 21:15	2°♂50'26	-6°-6'-36
				min. Earth dist.	-67 Nov 28 j 10:25	2°♂48'34	43.60816 AU
conjunction	-74 May 19 j 22:09	24°♄56'12	-7°-59'-1	direct	-66 Feb 16 j 12:51	1°♂47'49	
minimum elong	-74 May 19 j 22:19	24°♄56'13	7°59'02	max. Earth dist.	-66 May 26 j 23:59	3°♂19'38	45.50645 AU
max. Earth dist.	-74 May 18 j 14:05	24°♄54'18	46.89549 AU				
retrograde	-74 Aug 30 j 00:43	26°♄29'14		conjunction	-66 May 28 j 17:13	3°♂22'08	-5°-41'-27
opposition	-74 Nov 19 j 22:45	25°♄28'03	-8°-11'-49	minimum elong	-66 May 28 j 17:21	3°♂22'08	5°41'28
min. Earth dist.	-74 Nov 21 j 04:37	25°♄26'35	44.83378 AU	retrograde	-66 Sep 07 j 21:06	4°♂57'45	
direct	-73 Feb 09 j 16:22	24°♄26'43		opposition	-66 Nov 28 j 04:30	3°♂55'26	-5°-47'-32
max. Earth dist.	-73 May 19 j 20:10	25°♄56'20	46.73355 AU	min. Earth dist.	-66 Nov 29 j 17:43	3°♂53'33	43.42267 AU
				direct	-65 Feb 17 j 18:52	2°♂52'39	
conjunction	-73 May 21 j 06:01	25°♄58'20	-7°-42'-45	max. Earth dist.	-65 May 28 j 06:53	4°♂24'48	45.32052 AU
minimum elong	-73 May 21 j 06:11	25°♄58'21	7°42'46				
retrograde	-73 Aug 31 j 08:51	27°♄31'38		conjunction	-65 May 30 j 02:23	4°♂27'27	-5°-23'-2
opposition	-73 Nov 21 j 04:54	26°♄30'19	-7°-54'-47	minimum elong	-65 May 30 j 02:30	4°♂27'27	5°23'03
min. Earth dist.	-73 Nov 22 j 11:18	26°♄28'49	44.66825 AU	retrograde	-65 Sep 09 j 06:56	6°♂03'29	
direct	-72 Feb 10 j 21:49	25°♄28'48		opposition	-65 Nov 29 j 12:00	5°♂01'03	-5°-28'-12
max. Earth dist.	-72 May 20 j 02:24	26°♄58'37	46.56723 AU	min. Earth dist.	-65 Dec 01 j 03:09	4°♂59'04	43.23397 AU
				direct	-64 Feb 19 j 02:00	3°♂58'06	
conjunction	-72 May 21 j 14:00	27°♄00'44	-7°-26'-14	max. Earth dist.	-64 May 28 j 15:57	5°♂30'43	45.13085 AU
minimum elong	-72 May 21 j 14:09	27°♄00'44	7°26'14				
retrograde	-72 Aug 31 j 17:49	28°♄34'18		conjunction	-64 May 30 j 11:57	5°♂33'24	-5°-4'-20
opposition	-72 Nov 21 j 11:20	27°♄32'50	-7°-37'-28	minimum elong	-64 May 30 j 12:05	5°♂33'25	5°04'20
min. Earth dist.	-72 Nov 22 j 19:56	27°♄31'13	44.49867 AU	retrograde	-64 Sep 09 j 13:22	7°♂09'53	
direct	-71 Feb 11 j 02:37	26°♄31'07		opposition	-64 Nov 29 j 19:50	6°♂07'19	-5°-8'-34
max. Earth dist.	-71 May 21 j 10:16	28°♄01'15	46.39721 AU	min. Earth dist.	-64 Dec 01 j 12:10	6°♂05'16	43.04109 AU
				direct	-63 Feb 19 j 13:02	5°♂04'10	
conjunction	-71 May 22 j 22:15	28°♄03'23	-7°-9'-27	max. Earth dist.	-63 May 29 j 23:34	6°♂37'09	44.93683 AU
minimum elong	-71 May 22 j 22:25	28°♄03'24	7°09'28				
retrograde	-71 Sep 02 j 01:48	29°♄37'13		conjunction	-63 May 31 j 21:46	6°♂39'59	-4°-45'-22
opposition	-71 Nov 22 j 17:39	28°♄35'36	-7°-19'-52	minimum elong	-63 May 31 j 21:53	6°♂40'00	4°45'23
min. Earth dist.	-71 Nov 24 j 02:30	28°♄33'58	44.32564 AU	retrograde	-63 Sep 10 j 22:45	8°♂16'54	
direct	-70 Feb 12 j 09:51	27°♄33'41		opposition	-63 Dec 01 j 03:43	7°♂14'11	-4°-48'-39
max. Earth dist.	-70 May 22 j 16:14	29°♄04'03	46.22396 AU	min. Earth dist.	-63 Dec 02 j 21:00	7°♂12'04	42.84379 AU
				direct	-62 Feb 20 j 20:55	6°♂10'50	
conjunction	-70 May 24 j 06:29	29°♄06'20	-6°-52'-24	max. Earth dist.	-62 May 31 j 08:02	7°♂44'12	44.73808 AU
minimum elong	-70 May 24 j 06:38	29°♄06'20	6°52'24				
retrograde	-70 Jul 02 j 23:00	0°♂		conjunction	-62 Jun 02 j 07:52	7°♂47'09	-4°-26'-9
	-70 Sep 03 j 10:04	0°♂40'28		minimum elong	-62 Jun 02 j 07:59	7°♂47'10	4°26'09
	-70 Nov 05 j 19:27	30°♂		retrograde	-62 Sep 12 j 08:46	9°♂24'32	
opposition	-70 Nov 24 j 00:20	29°♄38'41	-7°-1'-59	opposition	-62 Dec 02 j 12:04	8°♂21'37	-4°-28'-27
min. Earth dist.	-70 Nov 25 j 10:33	29°♄36'59	44.14982 AU	min. Earth dist.	-62 Dec 04 j 07:32	8°♂19'24	42.64184 AU
direct	-69 Feb 13 j 16:52	28°♄36'35		direct	-61 Feb 22 j 03:41	7°♂18'03	
	-69 May 18 j 22:31	0°♂		max. Earth dist.	-61 Jun 01 j 17:21	8°♂51'51	44.53494 AU
max. Earth dist.	-69 May 24 j 00:32	0°♂07'18	46.04802 AU				
				conjunction	-61 Jun 03 j 18:00	8°♂54'52	-4°-6'-39
conjunction	-69 May 25 j 14:49	0°♂09'36	-6°-35'-5	minimum elong	-61 Jun 03 j 18:06	8°♂54'53	4°06'40
minimum elong	-69 May 25 j 14:58	0°♂09'37	6°35'06	retrograde	-61 Sep 13 j 20:10	10°♂32'41	
retrograde	-69 Sep 04 j 15:53	1°♂44'04		opposition	-61 Dec 03 j 20:27	9°♂29'35	-4°-7'-58
opposition	-69 Nov 25 j 07:11	0°♂42'08	-6°-43'-49	min. Earth dist.	-61 Dec 05 j 16:16	9°♂27'20	42.43563 AU
min. Earth dist.	-69 Nov 26 j 18:16	0°♂40'23	43.97144 AU	direct	-60 Feb 23 j 11:27	8°♂25'46	
	-68 Jan 02 j 20:58	30°♂		max. Earth dist.	-60 Jun 02 j 01:17	9°♂59'56	44.32760 AU
direct	-68 Feb 15 j 01:40	29°♄39'51					
	-68 Mar 28 j 19:24	0°♂		conjunction	-60 Jun 04 j 04:26	10°♂03'07	-3°-46'-54
max. Earth dist.	-68 May 24 j 07:44	1°♂10'53	45.86984 AU	minimum elong	-60 Jun 04 j 04:32	10°♂03'07	3°46'55
				retrograde	-60 Sep 14 j 09:07	11°♂41'23	
conjunction	-68 May 25 j 23:23	1°♂13'16	-6°-17'-29	opposition	-60 Dec 04 j 04:59	10°♂38'04	-3°-47'-11
minimum elong	-68 May 25 j 23:31	1°♂13'17	6°17'29	min. Earth dist.	-60 Dec 06 j 02:49	10°♂35'42	42.22564 AU
retrograde	-68 Sep 05 j 00:09	2°♂48'06		direct	-59 Feb 23 j 18:46	9°♂33'58	
opposition	-68 Nov 25 j 14:00	1°♂46'02	-6°-25'-21	max. Earth dist.	-59 Jun 03 j 11:52	11°♂08'39	44.11664 AU
min. Earth dist.	-68 Nov 27 j 01:24	1°♂44'15	43.79097 AU				
direct	-67 Feb 15 j 08:07	0°♂43'34		conjunction	-59 Jun 05 j 15:15	11°♂11'52	-3°-26'-52



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Attention, astronomical year style is used: The year -59 in astronomical counting style is the year 60 BCE in historical counting style.

minimum elong	-59 Jun 05 j 15:20	11°II11'53	3°26'53	min. Earth dist.	-51 Dec 17 j 04:06	21°II19'37	40.22658 AU
retrograde	-59 Sep 15 j 18:05	12°II50'36		direct	-50 Mar 06 j 13:37	20°II15'57	
opposition	-59 Dec 05 j 13:51	11°II47'03	-3°-26'-7	max. Earth dist.	-50 Jun 14 j 12:55	21°II55'35	42.10997 AU
min. Earth dist.	-59 Dec 07 j 12:23	11°II44'39	42.01230 AU				
direct	-58 Feb 25 j 05:46	10°II42'42		conjunction	-50 Jun 17 j 03:32	21°II59'43	0°-14'-15
max. Earth dist.	-58 Jun 04 j 20:48	12°II17'47	43.90267 AU	minimum elong	-50 Jun 17 j 03:32	21°II59'43	0°14'17
				behind sun begin	-50 Jun 17 j 00:41	21°II59'32	
conjunction	-58 Jun 07 j 01:58	12°II21'08	-3°-6'-33	behind sun end	-50 Jun 17 j 06:22	21°II59'53	
minimum elong	-58 Jun 07 j 02:03	12°II21'08	3°06'34	retrograde	-50 Sep 27 j 05:13	23°II43'40	
retrograde	-58 Sep 17 j 02:51	14°II00'20		opposition	-50 Dec 16 j 09:44	22°II38'04	0°-3'-6
opposition	-58 Dec 06 j 22:51	12°II56'34	-3°-4'-45	min. Earth dist.	-50 Dec 18 j 17:48	22°II35'03	39.99046 AU
min. Earth dist.	-58 Dec 08 j 22:09	12°II54'07	41.79641 AU	asc. node	-49 Feb 02 j 04:44	21°II44'47	
direct	-57 Feb 26 j 16:03	11°II51'56		direct	-49 Mar 07 j 22:21	21°II31'12	
max. Earth dist.	-57 Jun 06 j 07:00	13°II27'31	43.68620 AU	max. Earth dist.	-49 Jun 16 j 02:25	23°II11'33	41.87218 AU
conjunction	-57 Jun 08 j 13:06	13°II30'57	-2°-45'-58	conjunction	-49 Jun 18 j 17:18	23°II15'43	0°08'33
minimum elong	-57 Jun 08 j 13:10	13°II30'57	2°45'59	minimum elong	-49 Jun 18 j 17:18	23°II15'43	0°08'33
retrograde	-57 Sep 18 j 11:54	15°II10'39		behind sun begin	-49 Jun 18 j 11:39	23°II15'22	
opposition	-57 Dec 08 j 08:12	14°II06'39	-2°-43'-5	behind sun end	-49 Jun 18 j 22:58	23°II16'04	
min. Earth dist.	-57 Dec 10 j 08:58	14°II04'06	41.57836 AU	retrograde	-49 Sep 28 j 19:08	25°II00'21	
direct	-56 Feb 28 j 01:43	13°II01'45		opposition	-49 Dec 17 j 21:29	23°II54'28	0°20'54
max. Earth dist.	-56 Jun 06 j 17:52	14°II37'52	43.46790 AU	min. Earth dist.	-49 Dec 20 j 05:51	23°II51'26	39.75097 AU
				direct	-48 Mar 08 j 10:19	22°II47'16	
conjunction	-56 Jun 09 j 00:26	14°II41'21	-2°-25'-7	max. Earth dist.	-48 Jun 16 j 14:07	24°II28'13	41.63116 AU
minimum elong	-56 Jun 09 j 00:30	14°II41'21	2°25'08				
retrograde	-56 Sep 19 j 00:03	16°II21'35		conjunction	-48 Jun 19 j 07:20	24°II32'34	0°31'31
opposition	-56 Dec 08 j 17:44	15°II17'22	-2°-21'-7	minimum elong	-48 Jun 19 j 07:19	24°II32'34	0°31'30
min. Earth dist.	-56 Dec 10 j 18:18	15°II14'49	41.35857 AU	retrograde	-48 Sep 29 j 10:18	26°II17'52	
direct	-55 Feb 28 j 09:17	14°II12'11		opposition	-48 Dec 18 j 09:37	26°II11'43	0°45'11
max. Earth dist.	-55 Jun 08 j 03:40	15°II48'48	43.24774 AU	min. Earth dist.	-48 Dec 20 j 19:32	25°II08'34	39.50865 AU
				direct	-47 Mar 09 j 22:24	24°II04'09	
conjunction	-55 Jun 10 j 12:07	15°II52'24	-2°-3'-59	max. Earth dist.	-47 Jun 18 j 04:15	25°II45'51	41.38732 AU
minimum elong	-55 Jun 10 j 12:10	15°II52'24	2°03'59				
retrograde	-55 Sep 20 j 13:19	17°II33'12		conjunction	-47 Jun 20 j 21:51	25°II50'15	0°54'45
opposition	-55 Dec 10 j 03:36	16°II28'46	-1°-58'-51	minimum elong	-47 Jun 20 j 21:50	25°II50'15	0°54'46
min. Earth dist.	-55 Dec 12 j 05:57	16°II26'07	41.13712 AU	retrograde	-47 Sep 30 j 22:24	27°II36'16	
direct	-54 Mar 01 j 17:16	15°II23'19		opposition	-47 Dec 19 j 22:05	26°II29'49	1°09'46
max. Earth dist.	-54 Jun 09 j 15:51	17°II00'35	43.02583 AU	min. Earth dist.	-47 Dec 22 j 09:05	26°II26'35	39.26391 AU
				direct	-46 Mar 11 j 13:32	25°II21'54	
conjunction	-54 Jun 12 j 00:11	17°II04'12	-1°-42'-34	max. Earth dist.	-46 Jun 19 j 17:44	27°II04'17	41.14151 AU
minimum elong	-54 Jun 12 j 00:14	17°II04'12	1°42'35				
retrograde	-54 Sep 22 j 01:33	18°II45'35		conjunction	-46 Jun 22 j 12:34	27°II08'49	1°18'15
opposition	-54 Dec 11 j 13:47	17°II40'56	-1°-36'-17	minimum elong	-46 Jun 22 j 12:31	27°II08'49	1°18'15
min. Earth dist.	-54 Dec 13 j 16:26	17°II38'15	40.91374 AU	retrograde	-46 Oct 02 j 12:55	28°II55'34	
direct	-53 Mar 03 j 04:49	16°II35'13		opposition	-46 Dec 21 j 10:54	27°II48'48	1°34'36
max. Earth dist.	-53 Jun 11 j 01:57	18°II13'02	42.80174 AU	min. Earth dist.	-46 Dec 23 j 22:00	27°II45'33	39.01768 AU
				direct	-45 Mar 13 j 02:11	26°II40'32	
conjunction	-53 Jun 13 j 12:16	18°II16'48	-1°-20'-53	max. Earth dist.	-45 Jun 21 j 07:39	28°II23'40	40.89421 AU
minimum elong	-53 Jun 13 j 12:18	18°II16'48	1°20'53				
retrograde	-53 Sep 23 j 14:51	19°II58'48		conjunction	-45 Jun 24 j 03:34	28°II28'17	1°41'59
opposition	-53 Dec 13 j 00:14	18°II53'55	-1°-13'-25	minimum elong	-45 Jun 24 j 03:30	28°II28'17	1°41'59
min. Earth dist.	-53 Dec 15 j 04:00	18°II51'11	40.68800 AU		-45 Aug 29 j 19:14	0°☾	
direct	-52 Mar 03 j 15:35	17°II47'57		retrograde	-45 Oct 04 j 03:06	0°☾15'49	
max. Earth dist.	-52 Jun 11 j 13:57	19°II26'24	42.57467 AU		-45 Nov 08 j 21:17	30°☾II	
				opposition	-45 Dec 23 j 00:14	29°II08'45	1°59'42
conjunction	-52 Jun 14 j 01:05	19°II30'15	0°-58'-56	min. Earth dist.	-45 Dec 25 j 12:55	29°II05'24	38.77039 AU
minimum elong	-52 Jun 14 j 01:07	19°II30'15	0°58'57	direct	-44 Mar 13 j 13:40	28°II00'07	
retrograde	-52 Sep 24 j 01:33	21°II12'53		max. Earth dist.	-44 Jun 21 j 23:22	29°II44'05	40.64615 AU
opposition	-52 Dec 13 j 11:01	20°II07'47	0°-50'-16				
min. Earth dist.	-52 Dec 15 j 16:31	20°II04'56	40.45903 AU	conjunction	-44 Jun 24 j 19:09	29°II48'44	2°05'57
direct	-51 Mar 05 j 03:09	19°II01'32		minimum elong	-44 Jun 24 j 19:05	29°II48'44	2°05'56
max. Earth dist.	-51 Jun 13 j 01:48	20°II40'36	42.34424 AU		-44 Jul 01 j 15:07	0°☾	
				retrograde	-44 Oct 04 j 19:36	1°☾37'04	
conjunction	-51 Jun 15 j 14:12	20°II44'33	0°-36'-43	opposition	-44 Dec 23 j 13:45	0°☾29'42	2°25'04
minimum elong	-51 Jun 15 j 14:13	20°II44'33	0°36'43	min. Earth dist.	-44 Dec 26 j 02:07	0°☾26'20	38.52261 AU
retrograde	-51 Sep 25 j 14:12	22°II27'50			-43 Jan 15 j 14:12	30°☾II	
opposition	-51 Dec 14 j 22:10	21°II22'30	0°-26'-50	direct	-43 Mar 15 j 02:13	29°II20'42	



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 23

Attention, astronomical year style is used: The year -43 in astronomical counting style is the year 44 BCE in historical counting style.

	-43 May 11 j 12:40	0°☿		conjunction	-35 Jul 08 j 13:00	12°☿46'56	5°50'28
max. Earth dist.	-43 Jun 23 j 13:28	1°☿05'27	40.39761 AU	minimum elong	-35 Jul 08 j 12:49	12°☿46'55	5°50'27
				retrograde	-35 Oct 18 j 18:10	14°☿43'35	
conjunction	-43 Jun 26 j 11:06	1°☿10'15	2°30'08	opposition	-34 Jan 05 j 14:28	13°☿33'15	6°23'08
minimum elong	-43 Jun 26 j 11:01	1°☿10'15	2°30'08	min. Earth dist.	-34 Jan 08 j 10:42	13°☿29'16	36.24770 AU
retrograde	-43 Oct 06 j 14:51	2°☿59'24		direct	-34 Mar 27 j 22:24	12°☿20'43	
opposition	-43 Dec 25 j 03:54	1°☿51'44	2°50'40	max. Earth dist.	-34 Jul 07 j 04:21	14°☿14'01	38.10669 AU
min. Earth dist.	-43 Dec 27 j 17:34	1°☿48'18	38.27463 AU				
direct	-42 Mar 16 j 13:51	0°☿42'24		conjunction	-34 Jul 10 j 09:22	14°☿19'45	6°16'09
max. Earth dist.	-42 Jun 25 j 06:16	2°☿28'06	40.14870 AU	minimum elong	-34 Jul 10 j 09:10	14°☿19'44	6°16'10
				retrograde	-34 Oct 20 j 15:10	16°☿17'26	
conjunction	-42 Jun 28 j 03:28	2°☿32'55	2°54'32	opposition	-33 Jan 07 j 09:08	15°☿06'42	6°50'25
minimum elong	-42 Jun 28 j 03:23	2°☿32'54	2°54'32	min. Earth dist.	-33 Jan 10 j 05:18	15°☿02'41	35.98937 AU
retrograde	-42 Oct 08 j 06:43	4°☿22'56		direct	-33 Mar 29 j 17:47	13°☿53'41	
opposition	-42 Dec 26 j 18:28	3°☿14'58	3°16'30	max. Earth dist.	-33 Jul 09 j 00:49	15°☿48'04	37.84665 AU
min. Earth dist.	-42 Dec 29 j 08:23	3°☿11'30	38.02619 AU				
direct	-41 Mar 18 j 05:00	2°☿05'17		conjunction	-33 Jul 12 j 06:30	15°☿53'54	6°41'55
max. Earth dist.	-41 Jun 26 j 21:38	3°☿51'50	39.89923 AU	minimum elong	-33 Jul 12 j 06:17	15°☿53'53	6°41'55
				retrograde	-33 Oct 22 j 11:26	17°☿52'38	
conjunction	-41 Jun 29 j 20:16	3°☿56'48	3°19'08	opposition	-32 Jan 09 j 04:24	16°☿41'31	7°17'48
minimum elong	-41 Jun 29 j 20:10	3°☿56'47	3°19'08	min. Earth dist.	-32 Jan 12 j 01:54	16°☿37'23	35.73164 AU
retrograde	-41 Oct 10 j 00:17	5°☿47'42		direct	-32 Mar 30 j 11:23	15°☿28'03	
opposition	-41 Dec 28 j 09:20	4°☿39'27	3°42'34	max. Earth dist.	-32 Jul 09 j 22:50	17°☿23'35	37.58757 AU
min. Earth dist.	-41 Dec 30 j 23:54	4°☿35'56	37.77711 AU				
direct	-40 Mar 18 j 20:52	3°☿29'25		conjunction	-32 Jul 13 j 04:12	17°☿29'27	7°07'44
max. Earth dist.	-40 Jun 27 j 14:22	5°☿16'54	39.64843 AU	minimum elong	-32 Jul 13 j 03:58	17°☿29'26	7°07'45
				retrograde	-32 Oct 23 j 08:44	19°☿29'18	
conjunction	-40 Jun 30 j 13:48	5°☿21'58	3°43'56	opposition	-31 Jan 10 j 00:18	18°☿17'47	7°45'14
minimum elong	-40 Jun 30 j 13:41	5°☿21'57	3°43'56	min. Earth dist.	-31 Jan 12 j 21:02	18°☿13'41	35.47515 AU
retrograde	-40 Oct 10 j 16:33	7°☿13'47		direct	-31 Apr 01 j 06:51	17°☿03'52	
opposition	-40 Dec 29 j 00:57	6°☿05'14	4°08'51	max. Earth dist.	-31 Jul 11 j 19:50	19°☿00'31	37.32976 AU
min. Earth dist.	-40 Dec 31 j 17:08	6°☿01'36	37.52651 AU				
direct	-39 Mar 20 j 12:31	4°☿54'50		conjunction	-31 Jul 15 j 02:28	19°☿06'32	7°33'34
max. Earth dist.	-39 Jun 29 j 07:36	6°☿43'15	39.39593 AU	minimum elong	-31 Jul 15 j 02:13	19°☿06'31	7°33'34
				retrograde	-31 Oct 25 j 08:38	21°☿07'32	
conjunction	-39 Jul 02 j 07:46	6°☿48'25	4°08'55	opposition	-30 Jan 11 j 20:55	19°☿55'38	8°12'41
minimum elong	-39 Jul 02 j 07:38	6°☿48'24	4°08'55	min. Earth dist.	-30 Jan 14 j 18:39	19°☿51'27	35.22038 AU
retrograde	-39 Oct 12 j 10:11	8°☿41'10		direct	-30 Apr 03 j 00:30	18°☿41'16	
opposition	-39 Dec 30 j 16:55	7°☿32'19	4°35'21	max. Earth dist.	-30 Jul 13 j 19:51	20°☿39'15	37.07370 AU
min. Earth dist.	-38 Jan 02 j 09:06	7°☿28'39	37.27409 AU				
direct	-38 Mar 22 j 03:28	6°☿21'31		conjunction	-30 Jul 17 j 01:29	20°☿45'14	7°59'23
max. Earth dist.	-38 Jul 01 j 00:11	8°☿10'49	39.14128 AU	minimum elong	-30 Jul 17 j 01:13	20°☿45'13	7°59'24
				retrograde	-30 Oct 27 j 08:33	22°☿47'26	
conjunction	-38 Jul 04 j 02:18	8°☿16'09	4°34'05	opposition	-29 Jan 13 j 18:11	21°☿35'10	8°40'08
minimum elong	-38 Jul 04 j 02:09	8°☿16'08	4°34'05	min. Earth dist.	-29 Jan 16 j 15:35	21°☿30'58	34.96736 AU
retrograde	-38 Oct 14 j 05:15	10°☿09'52		direct	-29 Apr 04 j 21:25	20°☿20'23	
opposition	-37 Jan 01 j 09:36	9°☿00'40	5°02'02	max. Earth dist.	-29 Jul 15 j 18:10	22°☿19'34	36.81928 AU
min. Earth dist.	-37 Jan 04 j 03:41	8°☿56'52	37.01974 AU				
direct	-37 Mar 23 j 17:38	7°☿49'28		conjunction	-29 Jul 19 j 00:58	22°☿25'42	8°25'09
max. Earth dist.	-37 Jul 02 j 19:16	9°☿39'47	38.88470 AU	minimum elong	-29 Jul 19 j 00:41	22°☿25'41	8°25'09
				retrograde	-29 Oct 29 j 10:44	24°☿29'07	
conjunction	-37 Jul 05 j 21:16	9°☿45'09	4°59'24	opposition	-28 Jan 15 j 16:05	23°☿16'30	9°07'32
minimum elong	-37 Jul 05 j 21:06	9°☿45'08	4°59'24	min. Earth dist.	-28 Jan 18 j 13:57	23°☿12'15	34.71595 AU
retrograde	-37 Oct 16 j 01:24	11°☿39'50		direct	-28 Apr 05 j 17:38	22°☿01'18	
opposition	-36 Jan 03 j 02:43	10°☿30'16	5°28'55	max. Earth dist.	-28 Jul 16 j 18:53	24°☿01'49	36.56590 AU
min. Earth dist.	-36 Jan 05 j 20:57	10°☿26'26	36.76353 AU				
direct	-36 Mar 24 j 10:28	9°☿18'38		conjunction	-28 Jul 20 j 01:28	24°☿08'01	8°50'52
max. Earth dist.	-36 Jul 03 j 12:41	11°☿09'51	38.62637 AU	minimum elong	-28 Jul 20 j 01:11	24°☿07'59	8°50'52
				retrograde	-28 Oct 30 j 11:31	26°☿12'41	
conjunction	-36 Jul 06 j 16:48	11°☿15'25	5°24'52	opposition	-27 Jan 16 j 14:46	24°☿59'42	9°34'52
minimum elong	-36 Jul 06 j 16:38	11°☿15'24	5°24'52	min. Earth dist.	-27 Jan 19 j 13:28	24°☿55'22	34.46545 AU
retrograde	-36 Oct 16 j 22:49	13°☿11'04		direct	-27 Apr 07 j 17:11	23°☿44'05	
opposition	-35 Jan 03 j 20:13	12°☿01'07	5°55'57	max. Earth dist.	-27 Jul 18 j 19:24	25°☿45'54	36.31334 AU
min. Earth dist.	-35 Jan 06 j 15:42	11°☿57'12	36.50606 AU				
direct	-35 Mar 26 j 02:47	10°☿49'02		conjunction	-27 Jul 22 j 02:35	25°☿52'12	9°16'28
max. Earth dist.	-35 Jul 05 j 08:49	12°☿41'19	38.36677 AU	minimum elong	-27 Jul 22 j 02:16	25°☿52'10	9°16'27
				retrograde	-27 Nov 01 j 14:57	27°☿58'08	



## Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 24

Attention, astronomical year style is used: The year -26 in astronomical counting style is the year 27 BCE in historical counting style.

opposition	-26 Jan 18 j 14:12	26° <del>5</del> 44'47	10°02'07	opposition	-18 Feb 02 j 13:43	11° <del>0</del> 52'17	13°30'50
min. Earth dist.	-26 Jan 21 j 12:34	26° <del>5</del> 40'27	34.21572 AU	min. Earth dist.	-18 Feb 05 j 12:54	11° <del>0</del> 47'39	32.27507 AU
direct	-26 Apr 09 j 16:18	25° <del>5</del> 28'44		direct	-18 Apr 24 j 07:42	10° <del>0</del> 32'16	
max. Earth dist.	-26 Jul 20 j 20:26	27° <del>5</del> 31'51	36.06113 AU	max. Earth dist.	-18 Aug 05 j 15:18	12° <del>0</del> 46'48	34.10783 AU
conjunction	-26 Jul 24 j 04:21	27° <del>5</del> 38'16	9°41'56	conjunction	-18 Aug 08 j 21:04	12° <del>0</del> 53'34	12°55'20
minimum elong	-26 Jul 24 j 04:01	27° <del>5</del> 38'14	9°41'57	minimum elong	-18 Aug 08 j 20:40	12° <del>0</del> 53'32	12°55'20
retrograde	-26 Nov 03 j 15:43	29° <del>5</del> 45'30			-18 Oct 23 j 19:28	15° <del>0</del>	
opposition	-25 Jan 20 j 14:32	28° <del>5</del> 31'46	10°29'13	retrograde	-18 Nov 19 j 15:36	15° <del>0</del> 11'33	
min. Earth dist.	-25 Jan 23 j 14:21	28° <del>5</del> 27'19	33.96648 AU		-18 Dec 16 j 18:13	15° <del>0</del> <del>0</del>	
direct	-25 Apr 11 j 14:11	27° <del>5</del> 15'15		opposition	-17 Feb 04 j 20:17	13° <del>0</del> 54'19	13°54'47
max. Earth dist.	-25 Jul 22 j 23:23	29° <del>5</del> 19'45	35.80953 AU	min. Earth dist.	-17 Feb 07 j 17:47	13° <del>0</del> 49'46	32.04945 AU
				direct	-17 Apr 26 j 13:36	12° <del>0</del> 33'51	
conjunction	-25 Jul 26 j 06:57	29° <del>5</del> 26'13	10°07'15	max. Earth dist.	-17 Aug 07 j 23:54	14° <del>0</del> 49'53	33.88170 AU
minimum elong	-25 Jul 26 j 06:37	29° <del>5</del> 26'11	10°07'14				
	-25 Aug 12 j 19:43	0° <del>0</del>		conjunction	-17 Aug 11 j 05:34	14° <del>0</del> 56'42	13°17'16
retrograde	-25 Nov 05 j 17:42	1° <del>0</del> 34'44		minimum elong	-17 Aug 11 j 05:11	14° <del>0</del> 56'40	13°17'16
opposition	-24 Jan 22 j 15:21	0° <del>0</del> 20'36	10°56'09		-17 Aug 12 j 19:07	15° <del>0</del>	
min. Earth dist.	-24 Jan 25 j 14:36	0° <del>0</del> 16'09	33.71794 AU	retrograde	-17 Nov 22 j 00:21	17° <del>0</del> 16'06	
	-24 Feb 05 j 13:25	30° <del>0</del> <del>0</del>		opposition	-16 Feb 07 j 03:43	15° <del>0</del> 58'29	14°18'02
direct	-24 Apr 12 j 14:30	29° <del>5</del> 03'36		min. Earth dist.	-16 Feb 10 j 01:37	15° <del>0</del> 53'53	31.82912 AU
	-24 Jun 16 j 05:30	0° <del>0</del>			-16 Mar 19 j 13:42	15° <del>0</del> <del>0</del>	
max. Earth dist.	-24 Jul 24 j 01:15	1° <del>0</del> 09'22	35.55865 AU	direct	-16 Apr 27 j 17:36	14° <del>0</del> 37'35	
					-16 Jun 05 j 05:54	15° <del>0</del>	
conjunction	-24 Jul 27 j 10:19	1° <del>0</del> 16'00	10°32'21	max. Earth dist.	-16 Aug 09 j 11:10	16° <del>0</del> 55'15	33.66080 AU
minimum elong	-24 Jul 27 j 09:58	1° <del>0</del> 15'58	10°32'22				
retrograde	-24 Nov 06 j 22:03	3° <del>0</del> 25'51		conjunction	-16 Aug 12 j 15:00	17° <del>0</del> 01'59	13°38'30
opposition	-23 Jan 26 j 17:07	2° <del>0</del> 11'16	11°22'52	minimum elong	-16 Aug 12 j 14:36	17° <del>0</del> 01'57	13°38'30
min. Earth dist.	-23 Jan 23 j 17:32	2° <del>0</del> 06'43	33.47055 AU	retrograde	-16 Nov 23 j 09:36	19° <del>0</del> 22'49	
direct	-23 Apr 14 j 12:43	0° <del>0</del> 53'46		opposition	-15 Feb 08 j 12:10	18° <del>0</del> 04'49	14°40'30
max. Earth dist.	-23 Jul 26 j 06:20	3° <del>0</del> 01'00	35.30907 AU	min. Earth dist.	-15 Feb 11 j 08:44	18° <del>0</del> 00'17	31.61375 AU
				direct	-15 Apr 30 j 01:37	16° <del>0</del> 43'31	
conjunction	-23 Jul 29 j 14:22	3° <del>0</del> 07'37	10°57'12	max. Earth dist.	-15 Aug 11 j 20:57	19° <del>0</del> 02'39	33.44476 AU
minimum elong	-23 Jul 29 j 14:01	3° <del>0</del> 07'36	10°57'11				
retrograde	-23 Nov 09 j 02:02	5° <del>0</del> 18'47		conjunction	-15 Aug 15 j 01:04	19° <del>0</del> 09'28	13°58'57
opposition	-22 Jan 25 j 19:38	4° <del>0</del> 03'46	11°49'18	minimum elong	-15 Aug 15 j 00:41	19° <del>0</del> 09'26	13°58'56
min. Earth dist.	-22 Jan 28 j 19:35	3° <del>0</del> 59'13	33.22477 AU	retrograde	-15 Nov 25 j 21:41	21° <del>0</del> 31'44	
direct	-22 Apr 16 j 14:42	2° <del>0</del> 45'46		opposition	-14 Feb 10 j 21:35	20° <del>0</del> 13'21	15°02'08
max. Earth dist.	-22 Jul 28 j 10:04	4° <del>0</del> 54'18	35.06155 AU	min. Earth dist.	-14 Feb 13 j 17:55	20° <del>0</del> 08'49	31.40322 AU
				direct	-14 May 02 j 08:14	18° <del>0</del> 51'37	
conjunction	-22 Jul 31 j 19:00	5° <del>0</del> 01'04	11°21'43	max. Earth dist.	-14 Aug 14 j 09:58	21° <del>0</del> 12'25	33.23346 AU
minimum elong	-22 Jul 31 j 18:38	5° <del>0</del> 01'02	11°21'44				
retrograde	-22 Nov 11 j 09:35	7° <del>0</del> 13'34		conjunction	-14 Aug 17 j 12:11	21° <del>0</del> 19'07	14°18'33
opposition	-21 Jan 27 j 22:50	5° <del>0</del> 58'05	12°15'23	minimum elong	-14 Aug 17 j 11:48	21° <del>0</del> 19'05	14°18'34
min. Earth dist.	-21 Jan 30 j 22:54	5° <del>0</del> 53'30	32.98165 AU	retrograde	-14 Nov 28 j 09:01	23° <del>0</del> 42'48	
direct	-21 Apr 18 j 17:29	4° <del>0</del> 39'34		opposition	-13 Feb 13 j 07:55	22° <del>0</del> 24'03	15°22'52
max. Earth dist.	-21 Jul 30 j 16:36	6° <del>0</del> 49'37	34.81682 AU	min. Earth dist.	-13 Feb 16 j 03:35	22° <del>0</del> 19'32	31.19727 AU
				direct	-13 May 04 j 17:19	21° <del>0</del> 01'54	
conjunction	-21 Aug 03 j 00:28	6° <del>0</del> 56'21	11°45'52	max. Earth dist.	-13 Aug 16 j 21:45	23° <del>0</del> 24'09	33.02697 AU
minimum elong	-21 Aug 03 j 00:05	6° <del>0</del> 56'19	11°45'52				
retrograde	-21 Nov 13 j 15:49	9° <del>0</del> 10'11		conjunction	-13 Aug 19 j 23:56	23° <del>0</del> 30'55	14°37'16
opposition	-20 Jan 30 j 03:00	7° <del>0</del> 54'14	12°41'03	minimum elong	-13 Aug 19 j 23:34	23° <del>0</del> 30'53	14°37'16
min. Earth dist.	-20 Feb 02 j 03:07	7° <del>0</del> 49'37	32.74170 AU	retrograde	-13 Nov 30 j 23:47	25° <del>0</del> 56'00	
direct	-20 Apr 19 j 22:28	6° <del>0</del> 35'13		opposition	-12 Feb 15 j 19:06	24° <del>0</del> 36'52	15°42'35
max. Earth dist.	-20 Jul 31 j 22:46	8° <del>0</del> 46'41	34.57581 AU	min. Earth dist.	-12 Feb 18 j 13:46	24° <del>0</del> 32'23	30.99613 AU
				direct	-12 May 06 j 04:04	23° <del>0</del> 14'18	
conjunction	-20 Aug 04 j 06:34	8° <del>0</del> 53'29	12°09'34	max. Earth dist.	-12 Aug 18 j 12:05	25° <del>0</del> 38'07	32.82534 AU
minimum elong	-20 Aug 04 j 06:10	8° <del>0</del> 53'27	12°09'34				
retrograde	-20 Nov 14 j 23:45	11° <del>0</del> 08'40		conjunction	-12 Aug 21 j 12:43	25° <del>0</del> 44'48	14°55'00
opposition	-19 Jan 31 j 07:47	9° <del>0</del> 52'17	13°06'13	minimum elong	-12 Aug 21 j 12:21	25° <del>0</del> 44'46	14°55'00
min. Earth dist.	-19 Feb 03 j 06:46	9° <del>0</del> 47'42	32.50598 AU	retrograde	-12 Dec 02 j 13:09	28° <del>0</del> 11'15	
direct	-19 Apr 22 j 03:18	8° <del>0</del> 32'45		opposition	-11 Feb 17 j 07:17	26° <del>0</del> 51'43	16°01'15
max. Earth dist.	-19 Aug 03 j 06:25	10° <del>0</del> 45'43	34.33920 AU	min. Earth dist.	-11 Feb 20 j 01:48	26° <del>0</del> 47'13	30.79995 AU
				direct	-11 May 08 j 16:05	25° <del>0</del> 28'45	
conjunction	-19 Aug 06 j 13:33	10° <del>0</del> 52'32	12°32'45	max. Earth dist.	-11 Aug 21 j 02:19	27° <del>0</del> 54'02	32.62925 AU
minimum elong	-19 Aug 06 j 13:10	10° <del>0</del> 52'30	12°32'44				
retrograde	-19 Nov 17 j 06:29	13° <del>0</del> 09'06		conjunction	-11 Aug 24 j 02:04	28° <del>0</del> 00'42	15°11'40



# Planetary Phenomena of Pluto from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 25

Attention, astronomical year style is used: The year -11 in astronomical counting style is the year 12 BCE in historical counting style.

minimum elong	-11 Aug 24 j 01:43	28°00'40	15°11'40	minimum elong	-3 Sep 12 j 12:08	17°13'10	16°36'25
	-11 Oct 24 j 21:17	0°11'11		retrograde	-3 Dec 24 j 19:46	19°50'08	
retrograde	-11 Dec 05 j 04:39	0°11'28'29		opposition	-2 Mar 11 j 09:04	18°27'48	17°45'18
	-10 Jan 16 j 14:16	30°11'11		min. Earth dist.	-2 Mar 13 j 11:30	18°24'16	29.37273 AU
opposition	-10 Feb 19 j 20:15	29°08'34	16°18'45	direct	-2 May 30 j 07:11	17°02'07	
min. Earth dist.	-10 Feb 22 j 12:46	29°04'11	30.60946 AU	max. Earth dist.	-2 Sep 13 j 02:37	19°39'29	31.22488 AU
direct	-10 May 11 j 05:10	27°04'51'11					
	-10 Aug 18 j 09:56	0°11'11		conjunction	-2 Sep 15 j 06:58	19°44'41	16°39'48
max. Earth dist.	-10 Aug 23 j 17:38	0°11'56	32.43914 AU	minimum elong	-2 Sep 15 j 06:51	19°44'40	16°39'48
				retrograde	-2 Dec 27 j 17:01	22°22'31	
conjunction	-10 Aug 26 j 16:05	0°18'32	15°27'12	opposition	-1 Mar 14 j 04:55	21°00'00	17°48'14
minimum elong	-10 Aug 26 j 15:44	0°18'30	15°27'13	min. Earth dist.	-1 Mar 16 j 04:27	20°56'40	29.25952 AU
retrograde	-10 Dec 07 j 19:03	2°47'37		direct	-1 Jun 02 j 02:10	19°34'10	
opposition	-9 Feb 22 j 10:09	1°27'19	16°35'00	max. Earth dist.	-1 Sep 16 j 01:05	22°12'36	31.11573 AU
min. Earth dist.	-9 Feb 25 j 02:29	1°22'56	30.42521 AU				
direct	-9 May 13 j 17:24	0°03'33		conjunction	-1 Sep 18 j 02:24	22°17'31	16°41'24
max. Earth dist.	-9 Aug 26 j 10:30	2°31'47	32.25596 AU	minimum elong	-1 Sep 18 j 02:19	22°17'31	16°41'23
				retrograde	-1 Dec 30 j 12:54	24°56'08	
conjunction	-9 Aug 29 j 06:49	2°38'15	15°41'30	opposition	00 Mar 16 j 01:26	23°33'26	17°49'14
minimum elong	-9 Aug 29 j 06:30	2°38'13	15°41'29	min. Earth dist.	00 Mar 17 j 23:39	23°30'11	29.15516 AU
retrograde	-9 Dec 10 j 11:45	5°08'35		direct	00 Jun 03 j 22:36	22°07'28	
opposition	-8 Feb 25 j 00:36	3°47'55	16°49'53	max. Earth dist.	00 Sep 17 j 23:01	24°46'47	31.01595 AU
min. Earth dist.	-8 Feb 27 j 14:30	3°43'39	30.24806 AU				
direct	-8 May 15 j 07:55	2°23'45		conjunction	00 Sep 19 j 22:06	24°51'30	16°41'10
max. Earth dist.	-8 Aug 28 j 03:08	4°53'22	32.08040 AU	minimum elong	00 Sep 19 j 22:05	24°51'30	16°41'11
				retrograde	01 Jan 01 j 10:32	27°30'46	
conjunction	-8 Aug 30 j 22:15	4°59'46	15°54'28	opposition	01 Mar 18 j 22:30	26°07'54	17°48'16
minimum elong	-8 Aug 30 j 21:57	4°59'44	15°54'29	min. Earth dist.	01 Mar 20 j 17:23	26°04'53	29.05979 AU
retrograde	-8 Dec 12 j 02:57	7°31'19		direct	01 Jun 06 j 20:42	24°14'49	
opposition	-7 Feb 26 j 16:08	6°10'17	17°03'18	max. Earth dist.	01 Sep 20 j 21:44	27°21'57	30.92544 AU
min. Earth dist.	-7 Mar 01 j 05:19	6°06'04	30.07895 AU				
direct	-7 May 17 j 20:45	4°45'46		conjunction	01 Sep 22 j 18:06	27°26'24	16°39'07
max. Earth dist.	-7 Aug 30 j 22:16	7°16'53	31.91357 AU	minimum elong	01 Sep 22 j 18:05	27°26'24	16°39'06
					01 Dec 16 j 17:39	0°01'11	
conjunction	-7 Sep 02 j 14:11	7°23'02	16°06'01	retrograde	02 Jan 04 j 06:47	0°06'15	
minimum elong	-7 Sep 02 j 13:55	7°23'00	16°06'01		02 Jan 23 j 03:14	30°11'11	
retrograde	-7 Dec 14 j 18:41	9°55'45		opposition	02 Mar 21 j 20:09	28°43'13	17°45'18
opposition	-6 Mar 01 j 08:27	8°34'24	17°15'10	min. Earth dist.	02 Mar 23 j 13:36	28°40'18	28.97360 AU
min. Earth dist.	-6 Mar 03 j 18:50	8°30'21	29.91862 AU	direct	02 Jun 09 j 16:55	27°17'02	
direct	-6 May 20 j 13:04	7°09'35		max. Earth dist.	02 Sep 23 j 21:04	29°57'53	30.84471 AU
max. Earth dist.	-6 Sep 02 j 16:06	9°41'58	31.75615 AU		02 Sep 24 j 18:07	0°01'11	
conjunction	-6 Sep 05 j 06:46	9°48'02	16°16'04	conjunction	02 Sep 25 j 14:21	0°02'03	16°35'11
minimum elong	-6 Sep 05 j 06:31	9°48'01	16°16'04	minimum elong	02 Sep 25 j 14:24	0°02'03	16°35'11
retrograde	-6 Dec 17 j 12:38	12°21'54		retrograde	03 Jan 07 j 04:41	2°42'20	
opposition	-5 Mar 04 j 01:23	11°00'15	17°25'21	opposition	03 Mar 24 j 17:51	1°19'10	17°40'18
min. Earth dist.	-5 Mar 06 j 10:07	10°56'18	29.76787 AU	min. Earth dist.	03 Mar 26 j 07:52	1°16'28	28.89690 AU
direct	-5 May 23 j 02:48	9°35'09			03 May 22 j 21:15	30°11'11	
max. Earth dist.	-5 Sep 05 j 12:59	12°08'59	31.60868 AU	direct	03 Jun 12 j 16:07	29°52'53	
					03 Jul 03 j 00:50	0°01'11	
conjunction	-5 Sep 08 j 00:05	12°14'45	16°24'31	max. Earth dist.	03 Sep 26 j 19:53	2°34'16	30.77397 AU
minimum elong	-5 Sep 07 j 23:52	12°14'44	16°24'30				
retrograde	-5 Dec 20 j 05:49	14°49'42		conjunction	03 Sep 28 j 10:46	2°38'12	16°29'21
opposition	-4 Mar 05 j 19:14	13°27'49	17°33'49	minimum elong	03 Sep 28 j 10:50	2°38'12	16°29'21
min. Earth dist.	-4 Mar 08 j 01:38	13°24'01	29.62665 AU	retrograde	04 Jan 10 j 01:25	5°18'51	
direct	-4 May 24 j 19:20	12°02'29		opposition	04 Mar 26 j 16:04	3°55'31	17°33'14
max. Earth dist.	-4 Sep 07 j 08:10	14°37'30	31.47110 AU	min. Earth dist.	04 Mar 28 j 04:08	3°52'58	28.83026 AU
				direct	04 Jun 14 j 13:11	2°29'11	
conjunction	-4 Sep 09 j 17:49	14°43'09	16°31'19	max. Earth dist.	04 Sep 28 j 20:12	5°11'07	30.71396 AU
minimum elong	-4 Sep 09 j 17:38	14°43'08	16°31'20				
retrograde	-4 Dec 22 j 01:19	17°19'09		conjunction	04 Sep 30 j 07:09	5°14'40	16°21'36
opposition	-3 Mar 08 j 13:42	15°57'02	17°40'29	minimum elong	04 Sep 30 j 07:18	5°14'41	16°21'37
min. Earth dist.	-3 Mar 10 j 17:49	15°53'23	29.49507 AU	retrograde	05 Jan 11 j 21:23	7°55'33	
direct	-3 May 27 j 12:51	14°31'30		opposition	05 Mar 29 j 14:29	7°32'07	17°24'06
max. Earth dist.	-3 Sep 10 j 06:11	17°07'50	31.34321 AU	min. Earth dist.	05 Mar 30 j 22:56	6°29'50	28.77423 AU
				direct	05 Jun 17 j 12:50	5°05'45	
conjunction	-3 Sep 12 j 12:17	17°13'11	16°36'26	max. Earth dist.	05 Oct 01 j 19:00	7°48'00	30.66531 AU